

THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS



The Subsistence Homesteads Program

M. L. WILSON

Railroad Legislation of 1933

D. PHILIP LOCKLIN

Fair Rate of Return for a Gas Utility

CLYDE OLIN FISHER

Is Municipal Ownership at the Crossroads?

PAUL JEROME RAVER

Population and Building Construction

FRANK J. HALLAUER

The Regulation of Public Utilities in Ohio

EDWIN T. HELLEBRANDT

Special announcement to readers of the *Journal*---

Recent changes in the relations between Northwestern University and the Institute for Economic Research make it desirable to announce to readers of the *Journal* at this time the present status of the *Journal* and the arrangements under which it is being currently published.

In July, 1933 the affiliation between the Institute for Economic Research and Northwestern University was terminated by mutual agreement and the Institute transferred its main offices to New York City. There in its new quarters at 551 Fifth Avenue, the Institute is operating the School of Land Economics, a new venture in adult education. This School offers an advanced course of study in land economics and also an extension program in the same field. The purpose of the School is to give a broad training in land economics, thus furnishing a scientific basis for the determination of public policies in the field of land utilization.

The *Journal*, however, remains at Northwestern University and is being published at the present time by Northwestern University School of Commerce for the Institute. No change has been made in the policy or standards of the publication nor in its editorial personnel. The purpose of the *Journal* is the same as when it was founded 10 years ago—namely, to present scientific articles of high quality and constructive significance in the fields of land and public utility economics.

Therefore, readers who wish further information about the School of Land Economics and the Institute are requested to address the Institute at 551 Fifth Avenue, New York City.

Inquiries concerning the *Journal* are to be addressed to the Editor, Northwestern University, 337 East Chicago Avenue, Chicago, Illinois.

*The Journal of Land & Public
Utility Economics*

337 East Chicago Avenue
CHICAGO, ILLINOIS

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PUBLISHED QUARTERLY BY NORTHWESTERN UNIVERSITY FOR THE INSTITUTE
FOR ECONOMIC RESEARCH

Publication offices: 121 South Pinckney Street, Madison, Wis.

Editorial and General offices: Northwestern University, School of Commerce, 337 East Chicago Ave., Chicago, Ill.

The contents of the *Journal* are indexed in the *Industrial Arts Index*.

Entered as second-class matter,
January 5, 1925, at the post-office at
Madison, Wis., under the Act of
Congress of March 3, 1879. Accept-
ance for mailing at special rate of
postage provided for in section 1103,
Act of October 3, 1917, authorized
October 12, 1922. Printed in the
United States of America.

Subscription Rates: \$5 a year;
\$1.25 a copy. Remittances may be
made by personal checks, drafts,
post-office or express money orders,
payable to the Journal of Land &
Public Utility Economics.

Agents of the *Journal* in Great
Britain, B. F. Stevens & Brown, Ltd.,

28-30 Little Russell St., British Mu-
seum, London, W. C. 1.

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Advertising rates furnished on
application.

THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS

Published by Northwestern University for the Institute for Economic Research

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STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912.

Of The Journal of Land and Public Utility Economics, published quarterly, at 337 E. Chicago Ave., Chicago, Ill., for October 1, 1933.
State of Illinois, ss
County of Cook

Before me, a notary public in and for the State and county aforesaid, personally appeared Helen C. Monchow, who, having been duly sworn according to law, deposes and says that she is the managing editor of the Journal of Land and Public Utility Economics, and that the following is, to the best of her knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:
Publisher—Institute for Economic Research, Wieboldt Hall, Northwestern University, 337 E. Chicago Ave., Chicago, Ill.
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THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS

FEBRUARY
1934

VOLUME X
NUMBER 1



A New Land-Use Program: The Place of Subsistence Homesteads

By M. L. WILSON

BACK-TO-THE-LAND movements, so frequently advocated in recent years, imply not only the physical return to the soil of a considerable part of our population, but point to the need of a complete review of the question of land utilization in the solution of current economic problems. We are being forced to consider once more the whole problem of the relation between human society and the soil, and questions of land use promise to play an increasingly important part in the development of future policies affecting not only agriculture, but our whole economic structure.

Among the newer programs which revolve about a revised policy of land utilization is the subsistence homestead plan. The need for greater security among industrial workers has been one factor responsible for this idea; the agricultural situation has also

created the belief that a return to a more self-sufficient farming practice, by at least a certain part of our farm population, is essential to agricultural and, therefore, national economic recovery. The subsistence homestead idea is new to this country; there are both possibilities as well as dangers inherent in its application. In many ways it may be said to be one of the most ambitious thrusts of the present administration toward effecting long-term readjustments in our economic body.

One version of the subsistence homestead idea, known as part-time farming, has been adopted as a way of life by increasing numbers of people during the past depression-ridden years. The few studies which have been made of the part-time farm in various sections of the country indicate that its development has been anything but uniform, even in local areas¹, and little definite evidence

¹ See Hood, "Some Preliminary Results of a Study of Part-time Farms in Chemung and Tompkins Counties, New York," New York State College of Agriculture, June, 1933; Rozman, "Part-time Farming in Massa-

chusetts," Massachusetts Agricultural Experiment Station, *Bulletin* No. 266; Walker and Devault, "Part-time and Small Scale Farming in Maryland," Maryland Agricultural Experiment Station, *Bulletin* No. 357.

can be obtained of its net social results.

There is much that can be said, however, of the possibilities inherent in the idea as it bears on our future development. A certain amount of modern experience, small, to be sure, has been gained in combining agriculture and industry—an idea which has been a goal for social philosophers and economists since the days of Robert Owen. To date, experience has not proved the theory, for such a combination aims at security and stability, two social factors which played an unfortunately small part in the expansive and inflationary development of the past century. But today we are approaching a different world, where these two elements are in far greater demand than has previously been the case.

In the present process of economic readjustment, the program for subsistence homesteads finds itself in accord with many of the basic movements of the day. The recent development of part-time farming has been to a large extent attributable to the conditions of employment which the recent stoppage of industrial activity has effected; the subsistence homesteads program will find itself intimately connected with the solution of this problem, which promises to be with us not only today, but tomorrow and the next day as well. The decentralization of industry and of great overpopulated urban centers demands the application of a program such as the subsistence homestead idea embodies. The means of correcting some of the regional impoverishment, which a too expansive industry and agriculture have produced, imply a recourse to this new pattern of life.

Section 208 of the National Industrial Recovery Act appropriated a revolving fund of \$25,000,000 to aid in "the re-

distribution of the overbalance of population in industrial centers" and in "the purchase of subsistence homesteads."² By the authority given to the President and delegated by him to the Secretary of the Interior,³ a Division of Subsistence Homesteads in the Department of the Interior was formed to carry out the provisions of the Act. This Division is now engaged in the establishment of a series of projects throughout the United States, work on several being under way.

The limited fund appropriated for subsistence homestead purposes can hardly be expected to afford more than a demonstration of an effective agent in relieving economic distress. Quite distinct in organization and function from any of the emergency relief administrations, the Subsistence Homesteads Division looks upon its work as sampling the possibilities of long-term planning. Its present funds will, therefore, be disposed of with the view to securing the best possible demonstrations of the subsistence homestead idea as applied to various regional problems. The success or failure of these demonstration projects should go far toward establishing whether any permanent back-to-the-land movement can be expected to succeed, provided we can agree on what constitutes either success or failure.

Subsistence homestead projects established through the aid of the Government will vary in size and cost, depending both upon local conditions and the purpose which they propose to fulfill. Excellent opportunity for subsistence homesteads development is found in the vicinity of smaller industrial centers. In places of this sort projects will be carried out involving small plots of land, usually of from one to four acres in size, on which a four- or five-room modern

² Public Law No. 67, 73rd Congress.

³ Executive Order No. 6209, July 21, 1933.

home and a combination outbuilding will be constructed. With costs kept down to a minimum consistent with strength and durability, these homesteads will be offered to buyers at prices ranging from \$2,000 to \$3,000.

The owner of such a homestead will not be expected to derive his whole income from his plot of land. In most cases he will be a worker in some industry or trade and will receive a cash income from his employment. An income earned from even part-time employment should be sufficient for the homesteader to meet his financial obligations, and, aided by the produce of his home garden, help his family to attain a satisfactory standard of living. Families will be able to raise a considerable portion of their food supply on their plot, keep a flock of chickens, and, in some cases, add live stock, such as pigs, goats, or a cow to their possessions.

Projects of a purely rural nature will embody larger tracts, and in these communities the homesteaders will depend less on outside work and more upon the cultivation of crops for their cash income. These projects will be undertaken only as an auxiliary to programs involving the retirement of marginal lands. In both cases the families who settle on these homesteads will be financed on a long-term basis, 15 to 25 years, and will be required to make monthly repayment of their loans with interest at a low rate.

To many, the program will mean escape from the city and an opportunity to attain a better standard of living as well as a defense in times of unemployment. The program envisions the development of a new way of life in which many of the advantages of the country and the city will be available to selected families best adapted to this combination—for whom life which is entirely

rural or entirely urban prevents the fullest realization of their needs for sustenance, companionship, and security.

Previous Experience with Back-to-the-Land Movements

In this attempt to realize a new security by re-establishing contact with the soil, the United States is by no means alone. Various forms of a combination of agriculture and industry, or at least of a back-to-the-land movement, have been developed abroad.

Outstanding among the countries to foster a back-to-the-land movement has been Germany. A constricted food supply during the war, as well as a combination of national and international political factors, led to development of a vigorous land settlement policy, which aimed to bring about a denser rural settlement in certain parts of the country, particularly in the east. Years before other countries had felt the effects of the depression, Germany was struggling with the problem of unemployment, and new departures in land settlement policy were instituted to supplement the state insurance plan and other means of caring for the unemployed.

Two types of land settlement were evolved in this process. One was definitely rural settlement, which enabled unemployed farm laborers, and others with farm experience, to acquire small farms of from two to two and one-half acres in size. This program met with fair success; it merely provided an opportunity for good farm workers to obtain homes for themselves, and no attempt was made to extend this aid to persons lacking either a rural background or a positive interest in this system of living.

Aggravation of the unemployment situation brought on a further develop-

ment. For many years workmen's gardens had been commonplace along the outskirts of German towns or cities. This development had the encouragement of the state and municipal governments. The construction of permanent residences on the garden plots was encouraged. These new garden homes, known as Siedlungen, were first organized by various local governments; an appropriation was made by the Reich Government for the establishment of 16,000 such homes during 1932.⁴

These projects met with varying success; in some cases they proved failures, and in a few cases they succeeded admirably. Homesteads usually comprised about one-third of an acre, and cost in the neighborhood of \$600 (gold value).⁵ Maladjustments were traced most frequently to the selection of improperly qualified families to occupy the homesteads; delays in construction were frequently (though by no means always) the result of having the occupants of the communities provide their own labor in building the homes. Success was, in many cases, laid to a combination of factors among which were: keeping the costs down to a bare minimum; extremely careful selection of families, with reference not only to the head of the family, but the wife and children as well; and a policy of giving to the homesteaders a minimum with which to start, so that their personal initiative was brought into play in completing the work. It is still too early to tell what the net results of this program will be.

Much has been heard of the garden city plan in England, first proposed by the late Sir Ebenezer Howard. The intimate connection between workmen's

garden homes and city planning is one of the most interesting features of English experience in this field of endeavor.

Other countries have made various attempts to secure a sound land settlement policy with particular reference to the unemployment situation. The work carried on in this direction in Australia and New Zealand has embodied some interesting regulations of land use, but the success of these ventures has not been great. Mussolini has developed a nation-wide land reclamation plan for Italy, which involves the establishment of new peasant holdings for distressed agricultural workers, sometimes in conjunction with large-scale industrial farming.⁶ In Sweden the creation of small land holdings for industrial workers has been an accepted part of the economic development of that remarkably civilized country, particularly since the World War. Last December, in Soviet Russia, where the division of labor on a mass production basis is most vigorously prosecuted, the Government decreed that 1,500,000 workers should be allotted garden plots for the growing of vegetables.⁷

It would be out of place in this article to go into all the various programs for concerted back-to-the-land movements which have been undertaken in almost every country, and certainly on every continent in the world. Suffice it to say that the movement to effect a return to the soil has met with extreme difficulties in almost every case. Considerable differences arise as to the purpose of various national programs; and certainly the nations faced with a surplus agricultural production are in a far different position from those which

⁴ *Ibid.*

⁴ *Consular Report*, by Raymond H. Geist, Berlin, Germany, made to Central Bureau for Homeless and Transient Men (May, 1932).

⁶ Hinrichs, *New Land and New Life in Rural Italy*.

⁷ *Izvestia*, as reported by Associated Press, December 26, 1933.

are making every attempt to increase domestic food production.

More particular attention may be given to the past efforts at organized land settlements in the United States, for cultural traditions limit greatly the application of one people's experience to another. American experience has been essentially of two sorts: attempts to establish cooperative colonies; and land settlement programs fostered either by states or private concerns for the purpose of developing unoccupied areas.

Plans for the establishment of cooperative farm colonies in America were rife throughout the nineteenth century. Usually they were based either upon some religious or philosophic ideal, varying from the successful Mormon migration to Utah to the intellectual idealism which flowered and faded at Brook Farm in Massachusetts. A communal form of organization was usually adopted, although some of the communities which continued into modern times later on reorganized upon an individualistic basis.

Success did by no means favor these communities. Usually, one or two years saw the end of the community; some lasted until the generation of founders died off, when the younger people, no longer sharing the sectarian enthusiasm of their elders, merged their lives in those of the community at large. A few notable exceptions to the general rule of failure are, however, to be found. The colony established by the Perfectionists at Oneida, New York, in 1848, though it changed its communistic form of organization in 1879, has continued in existence up to the present time.⁸ At Amana, Iowa, a German sect known as the Inspirationists, a communistic group, has flourished since they first moved

from New York State to their present location in 1855.⁹ In 1932 this community reorganized on an individualistic, though cooperative, basis, and at that time comprised 1,400 individuals, living in seven villages. Zoar, Ohio, was the site of another religious community, which disbanded in 1898, each of the 136 members receiving real and personal property to the value of approximately \$8,000.00.¹⁰

Non-religious communities have failed to achieve even such limited success. As a result in no small degree of the interest of Horace Greeley, who had become enthused with the ideas of Charles Fourier, a number of colonies embracing the Frenchman's plan were started in America in the middle of the last century. All of them failed eventually, although some degree of temporary success was enjoyed by a few. The ideals of a communal society did not flourish in the rough fields of pioneer America, and except for outside financial help most of the communities would have failed more quickly.

Recent developments in the establishment of cooperative communities or land settlements have been few. The Llano Cooperative Colony, now located at Newllano, Louisiana, has set up for itself the goal of self-sufficiency, but so far this has not been achieved. Receiving an added impetus from recent industrial unemployment, the colony has continued with indifferent success to the present time. Considerable interest has been attached to the work of Hugh MacRae in developing communities in North Carolina, where intensive diversified farming is practised. Various public and private organizations have sponsored other land settlement plans, most of which have

⁸ Murchie, *Land Settlement as a Relief Measure*, (Minneapolis: University of Minnesota Press, 1933).

⁹ *Ibid.*

¹⁰ *Ibid.*

been in the nature of land developments, backed sometimes by state governments, with the hope of populating additional land to aid state finances.

Most of these settlements have been developed from the point of view of the promoter, and their frequent failure has been attributable to an unsoundness inherent in their purpose. Settlers have been misled with glowing descriptions of sites which were actually unsuited to such development; proper administration has been lacking in many cases. The Durham and Delhi projects in California, the White Bluffs-Hanford project in the state of Washington, and various attempts at veterans' colonizations are among the long list of land settlement projects, which at best have met with only qualified success. Certainly, the experience of the past does not point to any established means of undertaking a sound, organized back-to-the-land movement.

Reference to all these ventures is made chiefly for the light they shed on the causes of failure and on the mistakes to be avoided in future work. Poor location has been one of the most important elements leading to failure. In many cases proper soil surveys were not made; in some instances there was too great a dependence upon special facilities, such as irrigation projects, which proved unsatisfactory. Again, the location may have been unfortunate in its remoteness from other communities, this having an important bearing not only socially, but also economically, since crop failures or the disappearance of some special market left the settlers without other means of support.

In many cases, particularly in projects carried on by various state agencies, the paternalism embodied in the policy

toward settlers can be held largely responsible for failure.¹¹ Settlers, being allowed to think that the state was going to ensure them against all dangers, lost the necessary initiative and hardihood, without which no pioneering venture of any sort can hope to succeed. Politics have, of course, played a sad role in many of these state ventures, contributing to their eventual collapse. Finally, settlers have often unfortunately included persons unfit for agricultural work. This does not by any means conclude the catalogue of all the reasons for failure in the past; it does, however, indicate some of the more important danger signs of which past experience has taught us to beware.

Economic Bases of the Present Plan

Why is it then, in view of this dismal record of the past, that the United States Government has the temerity to institute a new program of land settlement? The answer is twofold: (1) because we believe that the best available knowledge and intelligence have rarely been brought to bear on individual land settlement projects; and (2) because we see the emergence of new tendencies in our national economy, which provide a far greater demand for the subsistence homestead program than has existed before.

Not least important among the modern developments, which augur well for the subsistence homestead plan, is the growing realization of the importance of a more adequate plan for land use. Economic trends in various parts of the country have combined to crystallize a new approach to land-use problems. The need is being more and more clearly perceived of basing land-use planning upon a social point of view rather than on the point of view of the promoter or entrepreneur. People must be aided in

¹¹ Hartman, *State Land-Settlement Problems and Policies in the United States*.

the movement into and out of particular land areas; not merely to develop hitherto unoccupied stretches of country, but to carry out the provisions of a broad economic plan which takes into account the needs as well as the productive capacities of national regions.

Already several states have instituted programs of land-use planning, which embody the new point of view. Michigan was one of the first states to see the need for an adequate land-use survey as a basis for sound planning.¹² Minnesota has made a start in the same direction.¹³ In Wisconsin there is at present being developed a new and extremely significant program whereby several counties are taking up the question of more economic land utilization, particularly as related to costs of county government. The zoning of several counties in northern Wisconsin is being undertaken with a view toward definitely limiting the uses to which land in those counties is put, these uses being determined with regard to the general welfare of the county as a whole.¹⁴ The program instituted by President Roosevelt, while he was Governor of New York, to reforest submarginal farm land is another example of the new emphasis on land-use planning.

In the final report of the National Land Use Planning Committee, the need for a closer cooperation between the various state and federal agencies, dealing with land-use questions, was stressed. The effective prosecution of the subsistence homesteads program demands that this be done to the utmost degree; in fact, the combined efforts of all qualified agencies are essential to the success of this new program.

For the past four years the State of

Georgia has been developing a program of land utilization through the combined efforts of State and federal agricultural institutions and the Regents of the University System of Georgia. One of the largest and most interesting of the subsistence homestead projects, which the Government is now helping to establish, is one which has been worked out to fit in closely with this program.

Five hundred families will eventually be involved in this demonstration project, which will strike at the heart of the chief agricultural problems of the old cotton belt. Two primary objectives are held in view for this project: (1) to point the way for the successful breakdown of the one crop system; (2) to point the way toward eradicating some of the rural slum areas where families have been hopelessly handicapped by adverse soil conditions, and have become subject to the vicious operations of the share-cropping system.

The land selected for this project lies in parts of two counties of northern Georgia, within about 50 miles of Atlanta. Soil experts, foresters, sociologists, agricultural economists have all bent their efforts toward determining the soundest possible location; and all their work has been correlated with the broad state-wide plan developed during the past four years. Each family will be given the opportunity to purchase about 30 acres of land, on which they will practise diversified farming. Planning will be the keynote to the success of this whole undertaking: crops produced will be those for which the associated economists and marketing experts can point to the most opportune markets; certain work in reforestation will be undertaken in accordance with the

lands, W. A., "County Zoning for Agriculture, Forestry and Recreation in Wisconsin," 9 *Journal of Land & Public Utility Economics* 266-271 and 272-282 (August, 1933).

¹² *Ibid.*

¹³ *Ibid.*

¹⁴ See Goodman, Robert B., "The Regulation and Control of Land Use in Non-Urban Areas", and Row-

state plan for forest development; the farmers, who will be chosen in groups from both races, will be to a large extent those who are at present cultivating cotton farms on poor soil, and their moving to the new site will in its small way be a measure in strict accordance with the larger federal plan for reduction of the cotton crop, especially on lands unsuited to its production.

Although the actual extent of the subsistence homestead work, necessarily limited by the funds placed at the disposal of the Division, will not in itself work any vital change in the agriculture either of the eastern cotton belt or the State of Georgia, it should augur much for the future development of a sound economic policy for cotton belt agriculture. The uneconomic system of one-crop production, as well as the futile and unsocial attempt to support life on large areas of submarginal land—two of the most pernicious factors in our present day agricultural distress—are both subject to direct attack in this undertaking, which envisions the recreation of rural life in the Southeast. What can be done in Georgia can be done elsewhere in the cotton belt; what can be done in the cotton belt, can be repeated in a similar fashion in other agricultural regions.

There is another principle which contemporary economic thought offers in support of a subsistence homestead program: the decentralization of industry. Although as yet there has been too little opportunity to discern what the nature of future industrial development will be, some signs indicate a tendency toward decentralization. The greater facility for change presented by smaller plants is one influence leading in that direction. In the drive for newer economies and reduced costs of production, the influence of the cheaper in-

dustrial sites, together with lower transportation costs, will no doubt play considerable part, adding its strength to the decentralizing trend. Finally, the opportunity to recruit a more satisfactory labor force, in small communities where the combination of part-time farming with factory work gives to the workmen a better sense of security, is also not without its influence upon the re-allocation of industry to smaller centers.

Both economic and sociological reasons can be advanced in support of the trend toward decentralization. Both a greater stability and a more healthful life will be achieved through the breakdown of the overpopulated urban centers and the movement of workers into semi-rural areas. The subsistence homestead program is definitely linked to the decentralization of industry and aims to aid in that trend. Several projects, formed under the guidance of the Division of Subsistence Homesteads, will be carried out in small industrial towns. Moreover, a special effort is being made to combine the planning of some subsistence homestead projects with the establishment of new factories in rural areas. It is hoped that, as the success of these projects is established, private industry will see the wisdom of carrying further the process of gradual decentralization in conjunction with subsistence homestead development.

A slightly different type of decentralization, already long evident in the trend toward suburban homes, will be fostered by subsistence homestead projects located in metropolitan districts. The development of garden homes on the periphery of large urban centers should play an important part in sound regional planning in such areas.

The fact that so considerable a back-to-the-farm movement has already taken

place, with its consequent of part-time farming, even though the extent and permanence of it are as yet undeterminable, nevertheless indicates a certain existing trend toward a decentralized society. Such a trend, if it is to be at all guided and directed into channels which should insure its greatest chances for success, demands the rational consideration of land utilization and regional planning, both on the part of private industries and the government. Neither the demand for this form of direction, nor the organization and intelligence necessary to it have been evident to any large extent in American life before this time. The presence of these two factors, therefore, form a far sounder basis for a subsistence homestead program than that of any of the specialized or exploitive land settlement programs of the past.

Mention has been made above of some of the chief contemporary problems to which the subsistence homestead program finds itself intimately related. Other problems, less broad in nationwide implications, but none the less vital and important are to be approached and in the solution of these problems different types of projects will be drawn up.

Stranded industrial populations present another problem which subsistence homesteads will help to solve. The coal miners of certain West Virginia fields, for example, have for years been without work, and the inefficiency or complete abandonment of these mines leaves these people without any hope for future employment. Either they will remain permanent charges upon the rest of the population, or some new economic basis for life in that region must be found.

In the two projects which have been started in West Virginia, the subsistence homestead will be used as the basis

of a new way of life. At Reedsville, near Morgantown, West Virginia, the development of 125 subsistence homesteads on fertile farm land is being carried on in conjunction with the construction of a Government factory for the manufacture of post office supplies—a unit needed to supplement the work of one small factory, which is already in operation in the District of Columbia.

In Randolph County, West Virginia, a second project is under way, which will draw its homesteaders not only from among the coal miners, but also from among the submarginal farmers of the region and stranded lumber industry workers as well. This project is close to the Monongahela National Forest, and the development of local wood-using industries, as well as lumbering operations in the National Forest, will offer a means of cash income to supplement the farming that will be carried on.

Farm leaders have frequently raised the issue of whether or not the work of the Subsistence Homesteads Division will not react unfavorably upon their industry. It has been argued that the encouragement of home production of vegetables and the creation of new farmers will merely add to the already distressing surpluses in agricultural commodities. A clear understanding of the actual policies to be pursued in subsistence homestead work is essential to a sound discussion of this point.

The workmen's garden homes, which comprise the majority of the projects included in the present program, will not produce crops for the market. Vegetables, fruit, poultry grown on subsistence homesteads will hardly suffice to do more than provide an average sized family with their own year's supply, and so long as the homesteaders are under the guidance of the Government (which means a period of from 15

to 20 years at least) commercial production will not be carried on. Again the point is sometimes raised that these families in producing their own food supplies will withdraw from the market as consumers of farm-grown products. That fact cannot be denied, but it can be considerably qualified. The average workman's diet consists chiefly of staple foods; the type of products grown at home, green vegetables, fruits, roots, and poultry form a minor item in his food expenditures. Home gardens will enable the homesteader to add a great variety of products to this food supply, which he would not under ordinary conditions enjoy, and which at the same time are foods that contribute vitally to health. Subsistence homesteads will not cut down the demand for wheat, sugar, cotton, and the other staples which form so large a part of the nation's commercial agricultural output.

In some of the farm communities that will be established, commercial production of agricultural commodities will be essential to supply the cash income which in other cases the subsistence homesteaders will derive from industrial work. In these rural projects, however, the products to be sold on the market will not be competitive crops. For example, in a farm community established in the cotton belt, cotton will not be raised on the subsistence farms; emphasis will rather be laid upon such commodities as truck crops, and particularly those for sale in the early spring and late fall. Furthermore, for every new farm created of this sort, a proportional amount of submarginal land will be taken out of production, which in most cases means land retired from cash crop production.

Administration of the Program

To facilitate the administration of the subsistence homestead program and to

provide a legal connection between the Division of Subsistence Homesteads and the individual projects, a Federal Subsistence Homesteads Corporation has been formed. Subsidiary corporations are formed to administer each project, the stock of such corporations being owned completely by the parent federal organization.

The success of local undertakings depends to no small degree upon the interest and endeavors of local groups who are interested in them, and for that reason the greatest degree of local autonomy in the management of projects is granted, consistent only with proper protection of the Government loans. Each local corporation will be controlled by a Board of Directors, composed of men representing the various interests of the community, together with usually one member of the staff of the Subsistence Homesteads Division. In the hands of this Board of Directors lies the supervision of all work connected with the construction and administration of the local project, subject always, of course, to the approval of the parent corporation.

Projects are worked up by the co-operative efforts of interested local citizens, representatives of State Agricultural Colleges, and members of the Subsistence Homesteads Division. At the present writing, requests for loans have totaled over \$4,000,000,000, whereas the funds made available for the work amount to \$25,000,000. When the plans are finally checked over and a project definitely accepted, the local corporation is set up, all legal papers drawn up by the legal department of the Division, and the loan advanced to the corporation. The intention of the Division of Subsistence Homesteads is to allow the local corporations only a reasonable

surcharge to the homesteaders for the purposes of administration. Profits do not accrue to any person in the development of these subsistence homesteads, and all costs are kept down to a minimum for the benefit of the occupants.

When the loan for a project is granted, the land is acquired and construction begun. In some cases the homesteaders are doing much of the work of building themselves. This is true of the project started at Dayton. There the people who are to occupy the finished homesteads represent a number of trades; and since the site is near the city, the homesteaders are able to do much of the work themselves. A great saving is thereby effected, which results in a cost of less than \$1,500.00 per homestead to the individual families in that particular project. A somewhat similar plan is being carried out at Reedsville, West Virginia, where a few portable houses were first erected to take care of a number of families, whose men are supplying the unskilled labor incident to the construction of the other homes and improvement of the land.

Selection of the individual homesteaders for most projects will be carried on by the local corporation after construction gets under way. Experience has demonstrated that the selection of families to take up subsistence homesteads is one of the most important elements determining the success or failure of the project. Too much emphasis can hardly be laid upon the human factors entering into the history of a subsistence homestead project. Not only the man, but every member of the family must be taken into consideration; in one *Siedlung* in Germany it has been estimated, that in approximately 90% of the cases, the family's inability to adjust themselves to the new way of life was attributable to the wife.

Various elements must be taken into account in making a selection of homesteaders. Some sort of agricultural experience is, of course, essential, and people are preferred whose background makes the transition from city to semi-rural life less difficult. Personalities are carefully scrutinized so that the first subsistence homesteaders will not fail for lack of adaptability or of the necessary energy to overcome the unforeseeable difficulties which come upon any new venture.

Considerable discussion has revolved about the point as to whether these subsistence homesteads are being provided for the unemployed. In some cases this will undoubtedly be the case, but it must be borne in mind that the subsistence homestead work is not primarily a relief program. Homesteaders will be required to repay the loans extended to them by the Government through the local corporations, and for that reason at least they must be people who have some sort of cash income. The possibility of continued employment is one of the most important factors taken into consideration in selecting those who are to occupy subsistence homesteads.

Loans are not extended directly to the individual homesteaders, but through the agency of the local corporation in charge of each project. The exact nature of the financing plan to be employed in each instance will vary somewhat in accordance with local requirements, but in general a plan will be adopted which will provide for monthly payments of interest and amortization over a period of 15 to 25 years. The local corporations will pay 4% interest to the Federal Subsistence Homesteads Corporation, and the interest charged to the individuals may be slightly higher, allowing for the necessary administrative costs involved.

In the social organization of these

homestead communities lies the germ for the development of a new way of life. No sort of communal society is planned, but the community will inevitably prove to be an important element in the life of all its members. Such scanty surveys as have been made of part-time farming indicate the varying degree of success among these people. The part-time farms of two New York State Counties were studied by the New York State College of Agriculture, and revealed that the percentage of the total food supply produced at home varied from zero to 75%.¹⁵ An essential part of the subsistence homestead program as developed by the Government is the education of the homesteaders in the subjects bearing upon their new way of life. Agricultural advice and consultation will be provided through the co-operation of the State Colleges and the Extension Service. General educational facilities, churches, and other social institutions will be included in those projects where the neighboring com-

munity does not already provide them.

Those charged with the responsibility for this program are well aware of the difficulties which any work of this sort faces. The list of failures has been a long one. As a result, the present program is cast in a different mold from most past ventures. No religious beliefs or political schools are connected with the projects now being established. Nor are present efforts directed toward the substitution of a communal form of life for the individualistic basis of American society.

It is a question still unanswered as to whether the century-old trend of population toward the "bright lights" of the city can be checked. Theoretically it is easy to say yes, but half-truths in regard to the back-to-the-land movement are many. This work aims not at a movement "back" to anything, but rather at the development of a new form of community living made possible by modern industrial and technological development, as well as by the growth of a more rational approach to questions of land utilization.

¹⁵ Hood, *op. cit.*, p. 15.

Railroad Legislation of 1933

By D. PHILIP LOCKLIN

IN 1933 Congress enacted three measures relating to railroad regulation: (1) the Delegation of Authority Act;¹ (2) the Relief of Debtors Act;² and (3) the Emergency Railroad Transportation Act, 1933.³

Delegation of Authority Act

This Act is an amendment to Section 17 of the Interstate Commerce Act. It authorizes the Interstate Commerce Commission to delegate certain of its powers to an individual commissioner or to a board composed of one or more employees of the Commission. By the Commission Division Act,⁴ enacted in 1917, the Interstate Commerce Commission was authorized to delegate authority to divisions of the Commission. The 1933 amendment carries this principle a step farther, and is in accordance with recommendations made by the Commission in its annual reports to Congress.

The Act does not permit the Commission to delegate authority in investigations instituted upon its own motion, nor, without the consent of the parties to the proceeding, in contested cases involving the taking of testimony at public hearings. The decision of a single commissioner or of a board of employees, in cases delegated to them, has the force and effect of an order of the Commission. Any interested party, however, may petition for a reconsideration or rehearing by the Commission or a division thereof, and any action by a division on the matter may itself be subject to reconsideration by the Commission.

¹ 72 Stat. 1368.
² 72 Stat. 1467.

The delegation of authority permitted by the 1933 Act should accomplish three things. It should expedite the handling of the Commission's work; it should enable the Commission to devote more time and attention to matters of major importance because its time will be freed from the consideration of less important matters, or those which can be handled in a routine manner; and it should enable the Commission to expand its work if that should become necessary as seems probable in view of the agitation for the regulation of motor transportation.

Relief of Debtors Act

This Act is an amendment to the Uniform Bankruptcy Act. Section 77 of the amended Act relates to the financial reorganization of railroad companies, and this is the part of the Act with which we are concerned here.

This measure is an outgrowth of the serious financial condition confronting the carriers as a result of the industrial depression which began in 1929 and continued into 1933 before any signs of recovery became apparent. The decline in business activity that accompanied the depression greatly reduced the volume of traffic to be shipped. This situation was intensified by the increasing diversion of traffic to other transportation agencies, chiefly motor carriers. Weekly carloadings which had ranged from 800,000 to nearly 1,000,000 per week in 1930 had fallen to about 550,000 in 1932. In that year 122 of the 162 Class I railroads failed to earn their fixed charges. Ordinarily the failure of

³ 73 Stat. 211.
⁴ 40 Stat. 270.

railroad companies to meet interest payments and other fixed obligations would have thrown them into the hands of receivers, pending a revision of their capital structures. Only a few companies, however, were placed in the care of receivers during this period. Receiverships were avoided to a large extent through loans from the Reconstruction Finance Corporation—a government corporation organized to extend aid to distressed banks and industries—and through loans from the Railroad Credit Corporation—a corporation organized by the railroads to extend loans to defaulting railroads out of funds received from the emergency increase in freight rates granted in 1931.⁵ As the depression continued, it became obvious that these forms of aid could not continue indefinitely and that some railroads would have to undergo a reorganization of their financial structures.

Purpose of the Act. The procedure and methods of effecting railroad reorganizations have been the subject of criticism for many years and the Relief of Debtors Act attempts to remove some of these objections. Stated briefly, the Act attempts (1) to insure that the management of the property during receivership will be in the interest of all parties concerned, and not in the interest of a certain group; (2) to provide machinery for working out a reorganization plan which will enable all parties affected to be heard, and which will be conducive to the promulgation of a plan that is fair to all classes of creditors and stockholders; (3) to weaken the power of minority interests to block desirable reorganization plans; and (4) to give the Interstate Commerce Commission

power to participate in the formulation of the plan, instead of leaving the Commission in the embarrassing position of being obliged to approve or disapprove a plan already worked out by reorganization committees and approved by the security holders. The Commission, under the present law regulating security issues, has approved of several reorganization plans that left the railroad companies with an unsound financial structure. The Commission did this because the financial structures were somewhat improved by the reorganization and the Commission hesitated to refer the matter back to the reorganization managers and committees for the working out of new plans, thereby undoing the labor of years.⁶

Provisions of the Act. The provisions of the Relief of Debtors Act, in so far as they relate to railroad reorganizations, may be summarized as follows:

(1) A petition stating that the railroad corporation is insolvent, or that it is unable to meet its debts, and that a reorganization is desirable may be filed with the proper federal court by the corporation, or by creditors of the corporation having claims of not less than 5% of all the railroad's indebtedness.

(2) Upon approving the petition the court may appoint a trustee or trustees who shall be responsible for the management of the property. The trustees must be chosen from a panel of persons qualified for such service and selected by the Interstate Commerce Commission. The trustees first receive a temporary appointment. After a public hearing, at which any creditor or stockholder may be heard, these trustees or other trustees are given a permanent appointment.

⁵ *Fifteen Per Cent Case, 1931*, 178 I. C. C. 539; 179 I. C. C. 215.

⁶ A striking instance was the Chicago, Milwaukee & St. Paul reorganization. The Commission more or less

apologized for approving an unsound reorganization, and four commissioners dissented from the approval of the plan.

(3) The Interstate Commerce Commission must recommend a plan of reorganization. This is to be done after a public hearing at which the debtor, the trustees, and any class of creditors may present a plan.⁷

(4) The plan of reorganization must be accepted by creditors holding two-thirds of any claims affected by the plan, unless other provision has been made for the settlement of their claims. Except under certain conditions, approval of the plan by holders of two-thirds of each class of stock is also necessary. If the reorganization plan finally accepted by the security holders differs from that originally proposed by the Commission, the Commission must approve the change.

(5) The plan, in a form acceptable to the Commission, and approved by the necessary security holders, is then submitted to the court for its approval. When so approved, the plan is binding. This weakens the power of dissenting creditors and stockholders.

(6) When the plan has been carried out, and the property conveyed to the new corporation, if a new corporation is provided for by the plan, the court is to discharge the trustees and close the case.

The reorganization law contains possibilities for good. It may remove some of the objectionable practices which have accompanied railroad reorganizations in the past. It was recognized, however, by the Interstate Commerce Commission when the bill was under consideration by Congress that it did not go to the root of the difficulties, and that more thoroughgoing reform would be desirable. Several railroads

are in process of reorganization under the new law; others have preferred to reorganize under the old procedure. Although no reorganizations have been completed under the new law, many of the objectionable features of past reorganization procedure are reappearing.⁸

Emergency Transportation Act, 1933

This Act consists of two parts. Title I contains measures designed to aid the railroads in meeting the situation brought about by the depression. Title II contains important amendments to the Interstate Commerce Act.

I. Emergency Provisions

The purposes of the emergency provisions are set forth in the Act as follows:

"(1) to encourage and promote or require action on the part of the carriers and their subsidiaries subject to the Interstate Commerce Act, as amended, which will (a) avoid unnecessary duplication of services and facilities of whatsoever nature and permit the joint use of terminals and trackage incident thereto or requisite to such joint use: *Provided*, That no routes now existing shall be eliminated except with the consent of all participating lines or upon order of the Coordinator, (b) control allowances, accessorial services and the charges therefor, and other practices affecting service or operation, to the end that undue impairment of net earnings may be prevented, and (c) avoid other wastes and preventable expense; (2) to promote financial reorganization of the carriers, with due regard to legal rights, so as to reduce fixed charges to the extent required by the public interest and improve carrier credit; and (3) to provide for the immediate study of other means of improving conditions surrounding transportation in all its forms and the preparation of plans therefor."

To accomplish these purposes the office of Federal Coordinator of Transportation was created. The Coordinator

⁷ Representation in behalf of any class of creditors must represent at least 10% of the amount of debt of that class.

⁸ The new law is severely criticized in Max Lowenthal, "The Railroad Reorganization Act", 47 *Harvard Law Review* 18 (1933) and by Jos. Weiner, "Reorganiza-

tion under Section 77", 33 *Columbia Law Review* 834 (1933). The Act is also criticized, but on entirely different grounds, in Rodgers and Groom, "Reorganization of Railroad Capitalization Under Section 77 of the Bankruptcy Act," 33 *Columbia Law Review* 571 (1933).

is appointed by the President with the advice and consent of the Senate, or is designated by the President from the membership of the Interstate Commerce Commission.⁹

The Act also provided for the creation of three regional coordinating committees—one for each of the three territorial groups of carriers, eastern, southern, and western. The regional committees consist of five regular and two special members. The regular members are selected by the carriers in each group. Each carrier has a vote in proportion to its mileage in the group. No carrier may have more than one representative on the committee. The two special members are appointed in a manner approved by the Coordinator. One member is to represent the small railroads, those having operating revenues of less than \$1,000,000 per year. The other is to represent the electric railways. The special members participate only in matters affecting the carriers which they represent.

Provision is also made by the Act for the creation of labor committees for each regional group to be selected by the railway employees. The Coordinator and the regional coordinating committees must consult the labor committees before taking any action affecting the interest of the employees.

The function of the regional committees is to devise ways and means for carrying out the economies and elimination of waste which the Act was designed to accomplish. If the regional committees are unable for any reason, legal or otherwise, to carry out these purposes by voluntary action, they are to recommend to the Coordinator that he, by order, require the necessary things to be done.

⁹ President Roosevelt appointed Commissioner Joseph B. Eastman to the office of Federal Coordinator.

The Coordinator is authorized to issue such orders if he finds them consistent with the public interest, and in furtherance of the purposes of the Act. Orders of the Coordinator are binding in the same manner as orders of the Interstate Commerce Commission, and they are also in like manner subject to court review. Provision is made for a review of orders of the Coordinator by the Interstate Commerce Commission upon petition of any interested party. The Commission may confirm, modify, or suspend an order of the Coordinator. Carriers are relieved from the operation of the anti-trust laws, and other laws, state and federal (except such as are for the protection of public health and safety), in so far as may be necessary to enable them to carry out any order of the Coordinator. The Coordinator, however, is not empowered to issue an order relieving a carrier from the operation of any state laws or order of a state commission until state authorities have been given an opportunity to present their views. Neither may such an order issue unless it is necessary to prevent or remove an obstruction to or a burden upon interstate commerce. A fine of not less than \$1,000 nor more than \$20,000 per day is provided for failure to comply with orders of the Coordinator.

The Coordinator is required by the Act to carry on certain investigational activities. He is directed to investigate and consider other means for improving transportation conditions in the country. His recommendations are to be submitted to the Commission which, in turn, will submit them with its own comments to the President and to Congress.

A number of additional provisions were written into the emergency section of the bill before its enactment by

Congress which were designed to protect the interests of labor. In addition to the creation of regional labor committees these provisions are as follows.

(1) The number of employees in the service of a carrier may not be reduced, by reason of action taken under this Act, below the number in service during May, 1933 after deducting the number removed by death, retirements, or resignation. The Act also provides that no employee shall be deprived of employment such as he had in the month of May, nor be placed in a worse position in regard to compensation by reason of any action taken under this Act. (2) The Coordinator is directed to establish regional boards of adjustment where action is taken under this Act making necessary such boards. These boards are those provided for by the Railway Labor Act of 1926. (3) The carriers must compensate their employees for losses and expenses imposed upon them by transfer of work from one locality to another. The Coordinator is to provide means for determining the amount of compensation in such cases.

The provisions regarding railway labor will in all probability prevent the railroads from making many of the economies which would otherwise be possible.

One of the stated objects of the Emergency Act is to promote the financial reorganization of carriers. The Act contains one provision in furtherance of this end. The Interstate Commerce Commission, which has the duty of approving loans to carriers by the Reconstruction Finance Corporation, is directed to approve no such loans if it is of the opinion that the carrier is in need of financial reorganization.

The emergency provisions of the law are only temporary measures. They terminate one year after their effective date unless extended by presidential

proclamation for one year or a part thereof. Under the direction of the Federal Coordinator, plans are already under way for carrying out the purposes of the Act. Many of these may prove to be of far-reaching significance. Investigations are also under way which should prove of immense value in shaping future legislation.

II. Amendments to the Interstate Commerce Act

The amendments to the Interstate Commerce Act included in the Emergency Transportation Act of 1933 comprise (1) a series of changes in the law regarding the combination and consolidation of railroads; (2) the enactment of a different rule of rate-making; (3) the repeal of the recapture clause of the Transportation Act of 1920; and (4) modification of the Valuation Act of 1913.

Railroad Combinations. The provisions of the Transportation Act of 1920 which relate to railroad combinations were unsatisfactory in many respects. Three important weaknesses should be pointed out in order to understand the changes made by the Emergency Transportation Act. (1) The former Act had provided one set of provisions for "consolidations", i. e., combinations which resulted in substituting one corporation for two or more pre-existing corporations, and it provided an entirely different and more lenient set of provisions for acquisitions of control through lease or stock ownership. (2) No provision was made in the older law for combinations through holding companies, or combinations effected through minority holdings by a number of individuals or closely related corporations. As a result of this situation, a considerable number of combinations had been effected which were not ap-

proved by the Commission, and which were directly contrary to the plan of consolidation drawn up by the Commission under the provisions of the Act of 1920. (3) The provisions of the Transportation Act requiring the capitalization of a consolidated corporation not to exceed the value of the consolidated properties, as determined under the Valuation Act, imposed difficulties in the way of effecting consolidations since the primary valuations of the Commission could not be brought up to date without a great deal of delay. These difficulties the Emergency Transportation Act of 1933 sought to remedy. Its provisions may be summarized as follows:

(1) All combinations, regardless of their form, are brought under a uniform rule.¹⁰ The inclusiveness of the Act is shown by the language used:

"It shall be lawful, with the approval and authorization of the commission . . . for two or more carriers to consolidate or merge their properties, or any part thereof, into one corporation for the ownership, management, and operation of the properties theretofore in separate ownership; or for any carrier, or two or more carriers jointly, to purchase, lease, or contract to operate the properties, or any part thereof, of another; or for any carrier, or two or more carriers jointly to acquire control of another through purchase of its stock; or for a corporation which is not a carrier to acquire control of two or more carriers through ownership of their stock; or for a corporation which is not a carrier and which has control of one or more carriers to acquire control of another carrier through ownership of its stock."

(2) Any attempt to effectuate the control or management in a common interest of two or more carriers except in the manner provided for in the Act is made unlawful. The prohibition applies "however such result is attained, whether directly or indirectly, by use

of common directors, officers, or stockholders, a holding or investment company or companies, a voting trust or trusts, or in any other manner whatsoever." Control of a carrier by an individual or individuals affiliated with another carrier whereby the affairs of one company may be managed in the interest of the other is likewise prohibited.

(3) Approval of unifications by the Commission is conditioned upon two findings: (a) that it "will be in harmony with and in furtherance of the plan of consolidation" drawn up by the Commission under the Act of 1920, and (b) will promote the public interest. The Commission may impose such terms and conditions as it finds to be just and reasonable.

(4) Partial exemption from the anti-trust laws is granted. When the Commission approves of a combination, the Act provides that the carrier is exempt from the anti-trust laws and all other prohibitions, state and federal, "in so far as may be necessary to enable them to do anything authorized or required by such order."

(5) In order to remove existing obstacles to the carrying out of the Commission's consolidation plan the Commission is empowered to investigate present holdings of railroad stocks and to determine if such control has the effect of subjecting one carrier to the control of another, and if it hinders the carrying out of the consolidation plan. In case of an affirmative finding the Commission may restrict the exercise of the voting power of such person with respect to such stocks to the extent necessary to prevent such holding from having the undesirable effects.

(6) If the Commission authorizes a corporation which is not a carrier to acquire control of any carrier, such

¹⁰ The Act strikes out the old requirements and substitutes those about to be described.

corporation becomes subject to the provisions of Section 20 of the Interstate Commerce Act relating to reports and accounts, and to Section 20a relating to the issuance of new securities, to the extent deemed advisable by the Commission.

The Rule of Rate-Making. The rule of rate-making provided by Section 15a of the Interstate Commerce Act is repealed and a new and simplified rule is substituted. The new rule reads as follows:

"In the exercise of its power to prescribe just and reasonable rates the Commission shall give due consideration, among other factors, to the effect of rates on the movement of traffic; to the need, in the public interest, of adequate and efficient railway transportation service at the lowest cost consistent with the furnishing of such service; and to the need of revenues sufficient to enable the carriers, under honest, economical, and efficient management, to provide such service."

The new rule of rate-making differs from the old in the following important respects: (a) It removes the positive command to give the carriers a supposedly definite income (fair return on fair value), a command which could not be carried out to the letter, and which gave rise to a demand for higher rates in times of depression when railway revenues were necessarily reduced by the decline in volume of traffic. (b) The fair-return-on-fair-value doctrine, instead of being used in the fixing of the level of rates for the carriers as a whole, is pushed into the background. The fair-value rule remains as it was before 1920, a rule to protect individual carriers against confiscatory rates. For the practical task of prescribing a rate-level there is substituted the simpler but less definite rule to prescribe rates which will enable the carriers to provide an adequate and efficient transporta-

tion service. (c) The new rule requires the Commission to consider "the effect of rates on the movement of traffic", a consideration not mentioned in the old act, and one which is particularly important during periods of depression.

Repeal of the Recapture Clause. The recapture clause of the Transportation Act of 1920 is repealed retroactively, and the excess earnings paid to the Commission under its provisions are to be distributed among the carriers in proportion to the share each had paid in.

The history of the recapture clause has been an interesting one. Attacked as unconstitutional, the clause was upheld by the United States Supreme Court in 1924. The Court recognized that it was a logical part of the rate provisions of the law, which sought to base rates on the aggregate property values of the railroads as a whole, or as a whole in groups, instead of upon the value of individual carriers. This is why the Court referred to the recapture provision as "the key provision" of the rate-fixing sections of the Act, and in another place as "the heart of the plan."¹¹

But the plan worked badly in practice. Students of regulation have long known that it possessed inherent weaknesses. In the first place, it could never have solved the weak-and-strong-road problem. This was for two reasons. It took only half the excess earnings of the stronger lines, and thus could never have completely alleviated the inequality in earnings that it sought to remedy. But to recapture all excess earnings would have put a premium on inefficiency and uneconomical management. Furthermore, the loaning of the recaptured sums to weaker carriers was a dubious form of relief. Under

¹¹ *Dayton-Goose Creek Ry. Co. v. United States*, 263 U. S. 456 (1924).

some conditions, the borrowing of funds for capital expenditures might have improved the earning position of weak lines, but when, as was so often the case, the weak position of the road was caused by sparsity of traffic or difficult operating conditions, there could be little prospect of improving earnings through capital expenditures.

At this point a second weakness in the provisions appears, although it could easily have been remedied. In order to qualify for loans from the contingent fund, the carriers were required to put up adequate security, and to pay 6% interest on the loan. This would have made it impossible for many weak roads to qualify for loans, and those which could qualify found it possible, for much of the period after 1920, to obtain loans on more favorable terms from other sources.

Another weakness in the law arose from the fact that no averaging of earnings from year to year was possible. Excess earnings of one year could not be offset by inadequate earnings of other years. The law recaptured excess earnings for each and every year in which they appeared. This was particularly burdensome to many small railroads whose earnings fluctuated from year to year. Instances are on record of railroads which were in default in the payment of interest but which had a liability to the government under the recapture clause for excess earnings obtained in particular years. Various attempts were made to amend the law and exempt the short-line railroads from the provisions of the recapture clause. With the coming of the depression, this objection to the recapture provisions became of importance to the larger and stronger lines, even to those which in normal times would have been considered as permanently in the re-

capture class. The depression brought home the fact that recapture based on the earnings of each year, considered independently of the earnings of other years, was unfair. This might have been remedied by permitting an averaging of earnings over a period of years, but this would have greatly increased the administrative difficulties of the law. The values and earnings would have to be checked for every year instead of only for years in which a carrier had a probable recapture liability.

But the most serious practical objection to the recapture clause was that recapturable earnings were determined by relating earnings to value. Half the earnings in excess of 6% on the "value" of the railroad's property were to be recovered. This at once injected the whole valuation controversy into the administration of the clause. "Fair value" is an indefinite term. It involves the exercise of judgment in weighing "elements of value" varying widely in amount, and for that reason it creates an administrative difficulty in applying the law. It is also provocative of endless litigation for there is every reason to believe that the railroads would have contested nearly every valuation on scores of grounds. The insistence of the courts that current cost of reproduction must be considered in valuation proceedings under the recapture clause implies that cost of reproduction would have to be known for every year in which a carrier might be subject to the clause. This would have made the administration of the clause extremely difficult and expensive. After the decision of the United States Supreme Court in the O'Fallon case, which held that current cost of reproduction must be "considered" in making valuations under the recapture clause,¹² a bill was

¹² 279 U. S. 461 (1929).

introduced in Congress prescribing a definite "rate base" in lieu of "value" for the purpose of administering the section. This would have greatly simplified the problem of administering the clause but would have involved constitutional difficulties.

Finally, the collection of the recapturable earnings accruing from 1920 to 1930 would have placed an impossible financial burden on many carriers. The larger railroads presumably subject to the recapture clause had paid practically nothing into the fund during this period. Commissioner Eastman once estimated the total recapture liability of the railroads as over \$378,000,000. But as this was based on the valuation method used in the O'Fallon case it was an overestimate. But even so, the sum was large enough to impose a severe strain on the carriers required to raise it during the depression. Presumably they should have made provision for the payments at the time the excess earnings were made, even if the exact sums due could not be ascertained at that time. But they had not done so, and to have raised the funds during the depression would have been difficult, if not impossible.

The recapture clause was sometimes condemned on the ground that many of the railroads which were strong because of a conservative financial structure were not subject to the recapture clause since their rate-making value was higher than their capitalization. But, on the other hand, many railroads which were weak—weak because of overcapitalization—had recapturable earnings. Thus the clause could not afford aid to weak carriers that needed it. But certainly it could not be argued that the credit of the overcapitalized roads should be bolstered up through

recapture from railroads which earned a moderate return on their value, but a large return on a conservative capitalization. The recapture clause was not designed to cure weakness attributable to excessive capitalization.

In view of the inherent weaknesses of and the administrative difficulties encountered in applying the recapture clause, it is well that it was repealed. It should be recognized, however, that the problem the clause was designed to solve is still with us.

Modification of the Valuation Act. The Valuation Act of 1913 (Section 19a of the Interstate Commerce Act) is changed in one respect. In place of the obligation imposed upon the Commission to bring its valuations up to date from time to time, the amended act requires the Commission to keep informed of all changes in property and property accounts of the carriers, and to keep informed of changes in costs and values of railroad property, in order that it may revise and correct the valuations when deemed necessary. In other words, instead of being required to keep the valuations up to date, the Commission is required to have the data from which revised valuations can be made, when and if necessary.

On the whole, the amendments to the Interstate Commerce Act made by the 1933 law may be characterized as improvements. It is easy, however, to anticipate difficulties in the administration of the revised Section 15a, and it is probable that this section will not prove wholly satisfactory. But here, as elsewhere, criticism may well be deferred until the accumulation of experience in the application of the new law.

A Fair Rate of Return for a Natural Gas Company¹

By CLYDE OLIN FISHER

ON JUNE 1, 1931 the City of Cleveland under authority granted by the laws of the State of Ohio enacted an ordinance regulating the prices charged for natural gas for domestic use within the City. The East Ohio Gas Company, the distributing company in the City of Cleveland, and its producing affiliate, the Hope Natural Gas Company, made an appeal from this ordinance to the Public Utilities Commission of the State of Ohio, as provided by statute. The City ordinance, if sustained by the Commission and the courts, it is estimated, would involve for a period of five years a reduction in revenues of approximately \$1,500,000 a year. By special arrangement the East Ohio Gas Company was permitted to continue its old rates pending a finding by the Commission, giving bond to refund to customers any charges collected in excess of those ultimately sanctioned by the Commission or the courts, in the event of appeal thereto.

During the summer of 1933 the writer was invited by the City of Cleveland to prepare economic data and to give testimony before the Public Utilities Commission on a fair rate of return for the East Ohio Gas Company. What follows is the substance of the information acquired in the study of this particular situation. Only a portion of this material was presented as evidence

before the Public Utilities Commission of Ohio. While the evidence here presented relates especially to the gas companies serving Cleveland, the principles involved in finding a fair rate of return apply to a much larger area and it is hoped that the evidence to follow may be of general interest in rate cases.

I. Is the Natural Gas Industry One of Wasting Assets?

While it is beyond the province of an economist to enter into the geological aspects of the natural gas industry, it is assumed for purposes of this analysis that the industry does not face the likelihood of an exhaustion of resources within the near or calculable future. A large body of evidence is available in support of this position. To cite only a few illustrations, Moody's *Manual for Public Utilities* contains the following statement:²

"With the discovery of immense resources of natural gas, the fear that exhaustion of supply would prohibit the extensive development of the industry has passed and today it is estimated by geologists that the country's supply is sufficient for many years to come."

The Public Utilities Commission of Ohio is apparently in accord with this general statement. In its *Annual Report* for 1932 it said:³

"However, gas seems now to be such an assured product that for the purposes of the present consideration it may be regarded almost as reliable as a water supply."

¹ In the organization and presentation of evidence the writer is indebted for suggestions made by Messrs. R. T. Jackson and S. W. Reeder, of the Cleveland, Ohio, bar.

² Moody's *Manual for Public Utilities*, 1932, chapter on "The Natural Gas Industry".

³ *Annual Report*, Public Utilities Commission of Ohio for 1932, p. 46.

While the writer holds no brief for the accuracy of this comparison, the conclusion, stated in connection with litigation involving a natural gas company in Columbus, is a generalization by the Commission based upon expert geological testimony presented to it and is sufficiently broad to warrant application to a company serving the City of Cleveland.

Even if the above statements are discounted, a more significant indication of the absence of any prospect of a speedy exhaustion of the natural gas used to supply this section is found in the construction, within the past few years, of new pipe lines designed to sell in the cities of Washington, Baltimore, and Philadelphia natural gas produced in West Virginia. Since gas sold in these new markets would be subject to price regulation, a reasonable assumption is that the large investment could not be expected to amortize itself except over a period of years. Among the companies financially interested in these new pipe lines is the Standard Oil Company (New Jersey), the owner of 100% of the stock of the natural gas companies serving the City of Cleveland. It is unthinkable that business leaders with the acumen credited to the Standard Oil group would invest millions of dollars in an enterprise to find new markets for West Virginia gas if they anticipated an exhaustion of the supply within the near future.

For purposes of ascertaining a fair rate of return for a natural gas company serving the City of Cleveland, therefore, little consideration need be given to what is usually designated as the "wasting asset" nature of the industry. At any rate, in the analysis which follows it is assumed that there is no special hazard of this character.

II. Factors Governing a Fair Rate of Return

A. Legal Principles. The Supreme Court of the United States in *Blue Field Water Works and Improvement Company v. Public Service Commission of West Virginia*, 262 U. S. 679 (1923), said:

"A public utility is entitled to such rates as will permit it to earn a return upon the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties. But it has no constitutional right to profits such as are realized or anticipated in highly profitable enterprises or speculative ventures."

While the Supreme Court in the same decision suggested as another criterion the cost of attracting capital adequate for maintaining the corporation's credit under efficient management, in the analysis that follows the evidence is based chiefly upon the quotation given above. This does not imply that no consideration is to be given to the cost of acquiring capital; the contention here made is that the utility, if permitted to earn a return as suggested above, will find itself in a position to attract whatever capital may be needed for expansion and desirable improvements, if the utility is located in a prosperous community which shows no prospect of decadence.

B. Economic Considerations. Speaking in general terms, the important factors which determine a fair rate of return may be listed as follows: (1) whether the particular business under consideration is in the developmental, experimental, or what is frequently characterized as the exploitation stage, or whether it is old and well established so that pioneering hazards no longer

obtain and there is no prospect of a dwindling market; (2) whether the territory under consideration is well settled and well developed from an economic point of view; (3) whether the particular company under consideration is among the leaders in that industry, or in other words, representative of the older and better established units of the industry; (4) the trend in rates of return for businesses generally, as a result of fundamental changes in economic conditions in one period of time as contrasted with another; (5) the financial soundness and intercorporate affiliations of the business unit under consideration.

III. The Natural Gas Industry Now Well Established

The natural gas industry has long since passed the experimental or exploitation stage in its development. For 30 years it has enjoyed a rapid but consistent, orderly, and stable growth until it has become one of the major industries in the United States. This is illustrated in striking manner by the record of growth of natural gas production and marketing, as presented in tabulated form in Moody's *Public Utilities* (1932).⁴ This table shows not only a remarkable growth but a record of stability which is not equaled by many other types of economic enterprises for the period in question. This stability of growth in business and earnings is especially notable in the production and sale of natural gas for domestic consumption. The natural gas business has taken its place as one of the best established and most stable industries in the country.

⁴ P. XLIX.

⁵ See table in Moody, *Public Utilities*, 1932, at p. 1.

⁶ Moody's *Manual for Public Utilities*, 1932, p. 1.

IV. The Natural Gas Industry in the Eastern Territory

The so-called eastern territory for the natural gas industry embraces Ohio, Pennsylvania, West Virginia, Kentucky, and within recent years has been extended into parts of New York State. This territory is the oldest, best developed, and best established division of the natural gas industry. Not only does it show an orderly development and stability in the producing field, but it enjoys a decided advantage in that it has the greatest density of population, the highest industrial development, the greatest per capita wealth, the greatest general economic stability, the largest supply of capital, and the best developed and most diversified economic life of any territory served by the natural gas industry. All these factors make it the most attractive field for conservative investment in the natural gas industry.

The natural gas industry in the State of Ohio occupies as favorable, and perhaps the most favorable, position of any section in the eastern fields. The importance, stability, and favored position of the natural gas industry in Ohio are reflected in a number of ways. Ohio has the largest total domestic consumption of natural gas in m. c. f. of any state in the Union.⁵ The contrast between Ohio and California indicates the favored position occupied by the natural gas industry in the former state. Moody gives the following data for 1930:⁶

	Number of Domestic Customers	Domestic Sales (M. C. F.)	Industrial Sales (M. C. F.)
Ohio.....	1,239,000	90,879,000	34,937,000
California....	1,330,000	47,519,000	287,270,000

Ohio, although having slightly fewer domestic consumers than California, had a consumption for domestic purposes approximately twice as large as that of

California. And it is the domestic sales which are not only more stable but also more profitable than industrial sales which meet greater price competition from alternative fuels.

The principal interstate movement of natural gas in the United States is from West Virginia to Ohio. Ohio has enjoyed a more steady and consistent growth in the sale of natural gas for domestic consumption than has any other state.⁷ The Ohio territory is among the most highly developed, well established, and best balanced sections in the United States. No state enjoys an economic life, the elements of which are more favorable to a natural gas company than in Ohio. There is a large production within the State. These large Ohio markets are adjacent not only to the producing fields in Ohio, but to the large gas fields in West Virginia. A high percentage of domestic consumption with its greater stability and freedom from industrial fluctuations creates an unusually favorable field for natural gas production and distribution. The agricultural development in Ohio is also far beyond the average for the United States. In 1925 the average value of land and buildings per acre for the United States was \$53.52. At the same time the figure for the State of Ohio was \$87.57.⁸ This is an added factor of stability for the great industrial development of the State.

V. The Position of the East Ohio Gas Company and the Hope Natural Gas Company in the Eastern Field

The business of the East Ohio Gas Company, both production and dis-

tribution, is confined to the State of Ohio. The business of the Hope Natural Gas Company, although located physically in the State of West Virginia, so far as it is involved in this litigation, is in reality an Ohio business and reflects the market and business conditions of Ohio. The Ohio territory served by the East Ohio Gas Company and its affiliate, the Hope Natural Gas Company, may be characterized accurately as the "cream of the Ohio territory," and indeed of the entire eastern territory. Certainly from the standpoint of density of population, industrial development, per capita wealth, abundance of capital, and general economic stability, the territory served by these companies is superior to that served by any other natural gas company in Ohio. The East Ohio Gas Company sells gas in some 56 cities and smaller municipalities. These include the largest city and the largest metropolitan area in Ohio and many other relatively large cities such as Akron, Youngstown, and Canton. No other natural gas company in Ohio, and indeed in the United States, has such a market. The East Ohio Gas Company has more domestic consumers than any other natural gas company in the United States.⁹

The City of Cleveland constitutes an especially favorable market for a natural gas company. This is indicated by the diversification of industries and the steady growth of population and business. Among the more important industries are textiles, iron and steel, lumber, paper and printing, chemicals, metal products, all kinds of labor-saving machinery, and various types of

⁷ See *Commerce Yearbook*, 1932, United States Department of Commerce, Table 54 at p. 257.

⁸ *Market Data Handbook of the United States*, 1929, pp. 162-163.

⁹ The Consumer Survey of American Gas Industries, for January, 1932, shows 6 natural gas companies each of which had more than 100,000 consumers. The East Ohio Gas Company sold to 476,982 consumers. Its nearest competitor in size, the Ohio Fuel Gas Company, had 204,683 consumers.

vehicles for transportation, including shipping. Cleveland has enjoyed a consistent and steady development. Its growth in population has been accompanied by a corresponding economic development. This is attested by the growth of postal receipts, the steady expansion in the number of business concerns, the rapid increase in the value added to goods by the process of manufacture, the trend of bank debits to individual accounts, and the comparative stability of employment and payrolls in the period prior to the present depression. Facts in support of these contentions appear in Table I.

The growth of population for the Cleveland metropolitan district from 1920-1930 exceeded the average for all metropolitan districts in the United States.¹⁰ The density of consumers in

¹⁰ 15th Census of the United States, Metropolitan Districts. Population data in 1932 give an increase of 24.9% for metropolitan districts of the United States and 27.7% for metropolitan Cleveland.

relation to population in the City of Cleveland is greater than that in any other large city served by the natural gas industry in the United States. The records show one meter for every four people in the City.

The above conditions in the eastern field, and particularly in the territory served by the East Ohio and Hope Natural Gas companies, reduce the element of hazard for investment to the minimum and justify a correspondingly low rate of return.

VI. Earnings of Industrial Corporations for Years 1930, 1931, and 1932

The National City Bank of New York publishes annually in its *Monthly Bulletin* for April figures showing the net earnings and the rate of return for a large number of industrial corporations operating in the United States. While there is considerable doubt as to the accuracy of any such data, those presented by the National City Bank are

TABLE I. METROPOLITAN CLEVELAND AS A MARKET FOR NATURAL GAS
(Miscellaneous Data—Annual Figures)

Year	Growth of Population*	Postal Receipts*	Growth in Number of Business Concerns*	Value Added to Goods by Manufacture*	Growth of Manufacturing Wages*	Growth in Bank Debits to Individual Accounts in Cleveland (Before Depression)†
1909					\$48,053,000	
1910	560,663					
1914				\$154,016,121	67,350,779	
1919					211,206,276	
1920	796,841	\$6,461,112.94		304,861,427§	132,943,882†	
1921						
1922			5,927			
1923					205,387,834	
1924		8,013,102.00	6,814			
1925					202,533,410	\$8,300,225,000
1926			7,265			9,019,632,000
1927					201,092,055	9,628,274,000
1928		9,880,724.00	7,797			10,268,424,000
1929		10,122,212.97	8,137			11,907,995,000
1930	901,482					

* Data derived from *A Decade in the History of Cleveland*, Cleveland Chamber of Commerce.

† Depression year.

‡ *Monthly Business Review*, Federal Reserve Bank of Cleveland, using February issues to get comparable data.

§ Census does not report later data.

at any rate indicative of the general trend. The figures published in the April, 1932 *Bulletin* apply to 1,620 corporations for the years 1930 and 1931. Figures published one year later give the data for 1,810 corporations for the years 1931 and 1932. It follows, therefore, that two figures are given for the year 1931, that is, those for 1,620 corporations made public in 1932 and those for 1,810 corporations made public in 1933. These tables show a rate of return in 1930 of 6%, in 1931 of 2.6% (2.4%, if the 1933 report is used), and in 1932 of 0.2%. This would give an unweighted simple arithmetic average of 2.9% for the three-year period 1930-1932. If a similar computation be made for the average earnings as related to net worth for a five-year period beginning in 1928 the result is a simple unweighted average of 6.1%. These figures present a striking picture of the downward trend of earnings over the past few years.

There is reason to believe that the ratio of earnings to net worth, as published by the National City Bank, is an overstatement of the facts. A number of reasons suggest this conclusion. In the first place, the corporations represented on this list are in the main those with large capital and a wide distribution of ownership, and hence of interest to a wide group of the public. The list of corporations is also unduly weighted by companies occupying a semi-monopolistic position and consequently enjoying somewhat more generous returns than average competitive enterprises received. Manufacturing corporations are given undue weight in contrast with trading and mining enterprises, the earnings for which in this period have been especially low. The tables

are compiled very hurriedly and this in itself gives undue weight to the successful corporations, for unsuccessful corporations tend in many instances to delay their reports because of their reluctance to give publicity to losses. Also the rate of return is figured on the net worth at the beginning of the year rather than the average net worth throughout the year.¹¹

VII. Earnings and Net Profits of all Member Banks in the Federal Reserve System

The Federal Reserve banking system, in its annual reports and in monthly bulletins, has reported the ratio of net profit to capital funds and to earning assets for the years 1923-1931. For some unknown reason the figures for 1932 have never been published. Students of banking are convinced by their investigations, however, that earnings for the year 1932 were in reality lower than those for 1931.

The term "capital funds" as used by the Federal Reserve Board includes what is ordinarily known as the owner's equity, that is, capital, surplus, and undivided profits, including reserves for dividends and contingencies, but excluding reserves for taxes, interest, and other accrued expenses. "Earning assets" as reported by the Federal Reserve Board is a total of loans and investments made by the banks.

The net profits of all member banks in the Federal Reserve System per \$100 of earning assets and per \$100 of capital funds are presented in Table II.

An examination of this table shows that the member banks of the Federal Reserve System in 1930 made net profits of 87 cents per \$100 of earning assets

¹¹ Professor Bonbright, in his testimony before the Wisconsin Public Service Commission, in the *Wisconsin Telephone Company Case*, 2-U-35 (pp. 1516-

1518), said that the statistician in charge of this work for the National City Bank had admitted an overstatement of earnings for the reasons listed above.

and in 1931 the corresponding figure was 4 cents. Likewise, for the same two years the net profits per \$100 of capital funds were \$4.56 and 19 cents, respectively. If it be assumed that the net profits for 1932 were identical with those for 1931, it follows that in the five-year period from 1928 to 1932 all member banks earned an average of 71 cents on each \$100 of earning assets and an average of \$4.53 on each \$100 of capital funds.

TABLE II. EARNINGS AND NET PROFITS OF ALL MEMBER BANKS IN FEDERAL RESERVE SYSTEM*
(In 000's)

Year	Total Earning Assets	Capital Stock Surplus and Undivided Profits	Net Profit Per \$100 Earning Assets	Net Profit Per \$100 Capital Funds
1923	\$26,206,988	\$4,380,074	\$1.29	\$7.69
1924	24,474,727	4,491,663	1.32	8.04
1925	29,673,891	4,580,294	1.41	9.14
1926	31,132,149	4,820,129	1.39	8.95
1927	32,755,971	5,162,702	1.36	8.66
1928	34,721,879	5,622,312	1.45	8.96
1929	35,727,128	6,360,306	1.56	8.75
1930	35,395,412	6,722,782	.87	4.56
1931	33,431,791	6,395,866	.04	.19

* Annual Report, Federal Reserve Board for 1931, Table No. 77.

Neither "capital funds" nor "earning assets" corresponds exactly to the rate-base upon which a public utility corporation is permitted to earn a fair return. "Capital funds" constitutes the owner's equity in a corporation. It follows, therefore, that an average return of \$4.53 per \$100 of capital funds would indicate a much lower rate of return on what would correspond to the rate-base for a public utility corporation. Earning assets correspond more nearly to the rate-base of a public utility corporation than do capital funds. But earning assets do not include the funds invested in bank building, the reserves against deposit liabilities, and cash in the vault. These three items would be included in the rate-base for a public utility corporation. It follows, therefore, that an average return of 71 cents on \$100 of earning assets would indicate

a somewhat lower rate of earnings on what is known as the rate-base for a public utility corporation. The only conclusion to be deduced from these official figures, as published by the Federal Reserve Board, is that capital invested in member banks throughout the country has enjoyed only a very low rate of return, and a rapidly decreasing rate during the past few years.

VIII. Return on Invested Capital for the Decade 1920-1929

It is sometimes suggested that public utility corporations have no share in the feast of prosperity and therefore should not be required to partake of the famine during depressions. Until a few years ago no reliable objective data were available to support or to refute this line of argument. In 1932 Professor Nerlove, of the University of Chicago, on the basis of studies made while employed as an expert in the Bureau of Internal Revenue of the United States Government, published data which seem to be reliable and which, if true, constitute an effective answer to the so-called "feast and famine" argument. Professor Nerlove's figures appear in Table III. Professor Bonbright, in his testimony before the Wisconsin Public Service Commission, gave figures for 1926-1928 which correspond closely with the results reached by Professor Nerlove.

Using Professor Nerlove's figures, it will be seen that during the decade 1920-1929 earnings on invested capital averaged 6.6%. For the years 1926-1928, a remarkably prosperous period, Bonbright finds an average of 6.6% for all corporations. In view of the fact that this decade, in spite of the depression of 1921, was one of the most prosperous in our entire history, these figures serve to dissipate the illusion of enormous profits earned on the average

TABLE III. RATE OF RETURN ON INVESTED CAPITAL FOR ALL CORPORATIONS

Year	Nerlove*	Bonbright†		
		All Corporations	Utilities Including Railroads	Non-Utilities
1920	7.0%			
1921	1.1			
1922	6.0			
1923	7.5			
1924	6.4			
1925	8.3	7.0		
1926	7.9	5.9	6.45%	6.7%
1927	6.8	6.8		
1928	7.9	average		
1929	7.7			
1930	1.4‡			

* Nerlove, *A Decade of Corporate Incomes* (Chicago: University of Chicago Press, 1932), p. 40. Figures were derived from returns of corporations reporting taxable incomes in 1920. These figures were adjusted to allow for those reporting no taxable income at that time.

† Testimony in 2-U-35, Wisconsin Telephone Company hearing, p. 1530.

‡ Rough estimate made by Nerlove and quoted by Bonbright in Wisconsin Telephone Company hearings, 2-U-35, pp. 1543-1550.

by unregulated industry in America. It is striking to note the degree to which the earnings for corporations in general compare with those for public utility corporations. The "feast and famine" argument, therefore, loses much of its significance as a basis for the claim to complete protection and insulation from the losses of a depression period for regulated public utility corporations.

IX. Earnings of Invested Capital in the Cleveland Area

A. Banks. The Federal Reserve Board, through the *Federal Reserve Bulletin*, has made public from time to time the earnings of member banks in each of the Federal Reserve districts. These earnings have been computed by the Federal Reserve Board as the ratio of net profits to each \$100 of capital funds. In the same bulletins, the Board has published the ratio of earning assets to capital funds. It is possible, there-

fore, to compute the net profit per \$100 of earning assets and thereby get a picture for each of the federal reserve districts similar to that which the Board has published for the member banks of the system as a whole. Table IV presents the data for member banks of the Cleveland Federal Reserve District for the years 1928-1931, inclusive, no data having been published for the year 1932.

TABLE IV. EARNINGS OF MEMBER BANKS, CLEVELAND FEDERAL RESERVE DISTRICT

Year Ending	Ratio of Earning Assets to Capital Funds*	Net Profits per \$100 Capital Funds*	Net Profits per \$100 Earning Assets†
June 30, 1928‡	6.07	\$8.02	\$1.32
Dec. 31, 1929§	5.78	8.39	1.45
Dec. 31, 1930¶	5.56	5.70	1.02
Dec. 31, 1931||	5.45	1.40	.25

* Data in Columns 2 and 3 are given in the *Federal Reserve Bulletin*. Figures in Column 3 are subject to slight changes after the lapse of one year when adjustments have been made. In no case does the change assume sufficient proportions to invalidate the results shown in the general picture.

† Figures in Column 4 are derived by dividing figures in Column 3 by those in Column 2.

‡ *Federal Reserve Bulletin*, December, 1928.

§ *Ibid.*, July, 1930.

¶ *Ibid.*, July, 1931.

|| *Ibid.*, June, 1932.

An examination of this table shows that for the years 1930 and 1931 the member banks of the Cleveland district derived net profits of \$5.70 and \$1.40, respectively, on each \$100 of capital funds. Likewise, for the same years, the net profits per \$100 of earning assets were \$1.02 and 25 cents, respectively. If it be assumed that the earnings for 1932 were identical with those for 1931—and indications are that they were lower in 1932 than in 1931—the average earnings per \$100 of capital funds for the five-year period (1928-1932) were \$4.98 and the average net profits per \$100 of earning assets 86 cents. Capital funds and earning assets

of the member banks of the Cleveland Federal Reserve district have the same relation to what is known as a rate-base for a public utility corporation as was indicated above in connection with the net profits for member banks of the Federal Reserve System as a whole.

Although the Hope Natural Gas Company, the producing affiliate in West Virginia from which the East Ohio Gas Company derives a portion of its gas, is not geographically a Cleveland corporation, nonetheless, in so far as the property of the producing company is affected by the Cleveland litigation, it is in reality a Cleveland business and reflects economic and industrial conditions in that City. If, however, the Hope Natural Gas Company be considered a West Virginia enterprise, it is of some interest to note the earnings of member banks for the Richmond Federal Reserve District in the period from 1928-1931, inclusive.

Table V, compiled in the same manner as Table IV, shows the net profits per \$100 of capital funds and the net profits

TABLE V. EARNINGS OF MEMBER BANKS, RICHMOND FEDERAL RESERVE DISTRICT

Year Ending	Ratio of Earning Assets to Capital Funds*	Net Profits per \$100 Capital Funds*	Net Profits per \$100 Earning Assets†
June 30, 1928‡	5.59	\$6.71	\$1.20
Dec. 31, 1929§	5.53	5.81	1.05
Dec. 31, 1930¶	5.30	4.23	.80
Dec. 31, 1931||	5.24	(loss) 1.85	(loss) .35

*Data in Columns 2 and 3 are given in the *Federal Reserve Bulletin*. Figures in Column 3 are subject to slight changes after the lapse of one year when adjustments have been made. In no case does the change assume sufficient proportions to invalidate the results shown in the general picture.

† Figures in Column 4 are derived by dividing figures in Column 3 by those in Column 2.

‡ *Federal Reserve Bulletin*, December, 1928.

§ *Ibid.*, July, 1930.

¶ *Ibid.*, July, 1931.

|| *Ibid.*, July, 1932.

per \$100 of earning assets for each year from 1928-1931. As indicated above, no data are available for the year 1932.

An examination of this table shows that the net profits per \$100 of capital funds for the member banks of this district were \$4.23 in 1930 while in 1931 a loss of \$1.85 was incurred. Similarly, calculation of the net profits per \$100 of earning assets for these two years showed 80 cents in 1930 and a loss of 35 cents in 1931. If it be assumed here as above that the profits for 1932 were identical with those for 1931, then the member banks of the Richmond district had for the five-year period (1928-1932) an average net profit of \$2.61 per \$100 of capital funds and 47 cents per \$100 of earning assets.

If, in finding a fair rate of return for a gas company whose product is generated in the West Virginia district and sold in the Cleveland district, any consideration be given to the earnings of capital invested in member banks of the Federal Reserve System, it is apparent that the utility could not anticipate any very generous return during this period of depression.

B. Cleveland Industrial Corporations.

For purposes of comparison, an attempt was made to find out the trend of earnings and the rate of return on invested capital for industrial corporations in Cleveland from 1928-1932, inclusive. For this purpose a list of all industrial corporations in the City of Cleveland employing 100 or more persons was checked against Moody's *Industrials* for net earnings during each of these years. As the study progressed it was quite apparent that a great many of these industrial corporations did not report their earnings consistently from year to year. Also, some of the cor-

porations reported earnings under the name of a consolidated unit rather than under the name by which they did business in the City of Cleveland. Out of 320 corporations named in the Cleveland Chamber of Commerce list it was possible to get the figures for net earnings for each year of the five-year period for only 43 industrial corporations. Through the information contained in Moody's, supported by consultation with Cleveland business men, 11 of these 43 corporations were removed from the list as not representative of Cleveland industry, judged by the proportion of their business done in the Cleveland area. There remained 32 Cleveland industrial corporations, a substantial portion of the business of which was done in the Cleveland area, i. e., enough business to constitute these corporations typical Cleveland enterprises.

Table VI gives a summary of the findings with reference to these 32 Cleveland industrial corporations. It will be noted that from 1928-1932 the net earnings decreased by 120%. Also,

TABLE VI. EARNINGS OF 32 CLEVELAND INDUSTRIAL CORPORATIONS

Year	Net Worth	Earnings	Percentage Earnings to Net Worth
1928	\$389,555,618	\$45,333,185	11.637%
1929	421,520,125	48,486,214	11.527
1930	374,099,985	23,087,525	6.171
1931	367,785,952	8,351,458	2.271
1932	335,029,383	(d) 9,078,202	(d) 0.783
Decrease 1928-1932 = 120 + %			
Average 1928-1932 = 5.779%			

using the figures published by these companies as to their net worth (owner's equity), the earnings were computed as a percentage of net worth. This indicated a deficit in 1932 and for the five-year period an average return of 5.779%.

Industrial capital in the City of Cleveland since 1930 has apparently not fared so generously as has the capital invested in member banks of the Federal Reserve System. It should be noted, further, that these data apply in general to the more successful industrial corporations, those which reported earnings during the depression years. Many other corporations reported earnings prior to 1930 and thereafter gave no reports. A fair presumption is that the failure to report reflected such lack of earnings as to make the corporations reluctant to give publicity to losses.

C. Cleveland Mercantile Establishments. In addition to the net earnings for industrial corporations and banking corporations, an effort was made to ascertain the earnings for mercantile enterprises in Cleveland for the five-year period from 1928-1932. It soon developed, however, that the reluctance of mercantile establishments to publish reliable information would make such a study extremely difficult, and perhaps impossible for any large number of enterprises. It was possible, however, to secure from the Harvard University Bureau of Business Research aggregate figures showing net profit or loss for certain mercantile establishments in Cleveland which had granted permission to release these data in the aggregate form, in no case indicating the identity of the reporting enterprise. The Bureau of Business Research in reply to a request for such information canvassed the mercantile establishments reporting to it in the Cleveland area and secured from five department stores and specialty shops permission to release the aggregate figures. No data have been secured as to net worth of these enterprises and the figures are significant only in showing the trend.

The net profit or loss for each of the five years is as follows:

1928-Profit..	\$638,522
1929-Profit...	781,150
1930-Loss..(	448,423)
1931-Loss..(	1,211,086)
1932-Loss..(	1,583,353)

This summary shows that earnings for these particular mercantile establishments, the only ones for which data could be secured, decreased from a net profit of \$638,522 in 1928 to a net loss of \$1,583,353 in 1932; in other words, a decrease over the five-year period of 347.9%.¹²

X. The Credit, Financial Standing, and Condition of the East Ohio and Hope Natural Gas Companies in the Industry

A. East Ohio Gas Company. An examination of various exhibits introduced by the Company and by accountants and engineers for the City of Cleveland shows that the business of the East Ohio Gas Company has been long established, highly stable, very profitable, and that the Company has had in the past and continues to have the highest credit rating.

The capital structure of the East Ohio Gas Company consists of \$28,500,000 of common stock and \$10,000,000 of 7% preferred stock, all stock of both kinds being owned entirely by the Standard Oil Company (New Jersey). The Company has no bonded indebtedness and on June 30, 1931 showed a surplus of more than \$6,000,000 and reserves of more than \$30,000,000. It carried on its books a demand loan made to the parent corporation at 3% in the sum of \$6,113,012.92. The Company has paid regularly the 7% dividend on the pre-

ferred stock and the dividends on common stock from 1923-1932, inclusive, aggregated 115%, or an average of 11.5% annually. The strong financial position of the Company, together with its records of earnings and dividend payment, would therefore entitle it to the highest credit rating if the public were permitted to participate in its capital financing.

B. Hope Natural Gas Company. The history of the Hope Natural Gas Company, like that of the East Ohio Gas Company, shows that the business of this Company has been established for many years, that it has been highly stable, very profitable, and that the Company has had through the past years and continues to have the highest credit rating. The data compiled by accountants for the City of Cleveland show that on June 30, 1931 the Hope Natural Gas Company had capital stock of \$27,969,300 and that it had no bonds or preferred stock. Surplus and reserves aggregated \$41,701,750.38. United States securities were held in the amount of \$6,873,964.56 and total current assets amounted to \$17,984,087.16. From 1920-1932, inclusive, the Company paid dividends in the aggregate of 255.6% on its capital stock or an average for the 12-year period of 19.66% annually. Such a strong financial position, in view of the earnings and dividends of the Company, give to it a credit position of the best quality. Also, the substantial holdings of government securities and other liquid assets relieve this Company, as well as the East Ohio Gas Company, of the necessity of going into the market to attract new funds for development and expansion or of borrowing from the parent company.

¹²The Harvard Business Bureau computes net profit after the deduction of 6% for investment in

inventory. In this case, however, no significance attaches to what definition is used since the only purpose has been to show the trend.

XI. Affiliation of the East Ohio and Hope Natural Gas Companies with Standard Oil Company (New Jersey)

The ownership of the East Ohio Gas Company and the Hope Natural Gas Company by the Standard Oil Company (New Jersey) gives an added element of strength to the already high credit position of the subsidiary corporations. This ownership and sponsorship increase the attractiveness of the subsidiary corporations from an investment point of view. Even in the event that the operating companies found it necessary to go into the investment market to secure funds, the mere fact that the Standard Oil Company is the sole stockholder would give to it a stake in the continued solvency of the subsidiary corporations, a stake of such moment as to constitute a de facto if not a legal assurance of interest payment on the bonded debt of the subsidiary corporations. This, of course, is not a very likely development in the near future as can be seen from an examination of the balance sheet of the gas companies. The highly favorable financial position of the Standard Oil Company (New Jersey) is well known in the investment world. Recent reports show that it has approximately \$500,000,000 invested in government securities and other liquid assets. In other words, the financial strength of the Standard Oil Company (New Jersey) is on a larger scale comparable to that revealed by the financial statements of the East Ohio Gas Company and the Hope Natural Gas Company on a smaller scale.

XII. Rate of Return

In view of the pronouncements of the United States Supreme Court as to the relevancy of earnings on invested capital in enterprises in the same general com-

munity in which a public utility corporation operates and subject to a similar hazard, it seems reasonable to conclude that $5\frac{1}{2}\%$ would constitute a generous rate of return, and 5% an eminently fair rate of return, for the gas property allocated to the Cleveland service for the five-year period beginning in the middle of 1931. The studies made by Professor Nerlove, alluded to above, would indicate that 6% was a fair rate of return for these gas properties during normal periods. While it is undoubtedly true that public utility corporations, subject to regulation as to the maximum charges and earnings made, should not feel the shocks of a depression in the same measure in which unregulated corporations suffer, there is a limit to the degree to which one can justify a complete insulation of the public utility corporation from shocks and disturbances to the economic order. So far as available data indicate the situation likely to obtain within the remaining years of the period covered by the five-year ordinance, there seems to be no justification for authorizing a return in excess of 5% of the fair value of the property of the gas companies serving the Cleveland territory. If such a return be permitted, in view of the unusually strong credit position of these companies, there seems little doubt that the large volume of investment capital seeking safe outlets, if only the investments have the appearances of a high degree of safety, would be attracted in whatever measure needed to the East Ohio Gas Company and the Hope Natural Gas Company. In fact, the instability in the economic order and the presence of doubt in connection with most financial ventures at the current date would probably enable companies with the strength of these gas companies to attract funds on terms

even more favorable than in normal times. The basis on which United States Government bonds, the strength of which is unquestioned save for the possibility of a change in the purchasing power of money, have sold during the past few years is an indication of the ease with which money can be secured if only the element of hazard be removed. All in all, therefore, these gas

companies should not expect to earn in times of depression, such as we now have, more than 5% on the fair value of their property. Accountants for the City of Cleveland estimate that the ordinance rates, if sustained by the Commission, will enable the gas companies to earn approximately 6% on the fair value of their property allocated to the Cleveland service, as computed by City accountants and engineers.

Population and Building Construction

By FRANK J. HALLAUER

VOLUME of new building construction is made up primarily of replacements to take care of obsolescence, losses by fire and tornado, or replacements for other causes, and provision for growth of population. When growth of population is very rapid it is the dominant factor in determining volume of new construction, and that has been this country's experience in the past.

Numerical increase in our population has up to the present been greater for each decade than for the preceding one (excepting Civil War and World War interruptions), and this growth has been reflected directly in volume of building construction. It is natural, perhaps, that such experience long maintained should be looked upon as normal. However, a sudden change has apparently taken place. Recent forecasts for the United States indicate a population of between 131 and 133 million by 1940,¹ or an increase of only 8 or 10 million from the level of 1930, compared with an increase of over 16 million from 1920 to 1930. The new trend is expected to continue toward a stabilized

population, and raises the important question as to what the effect will be on new building construction.

Chart I represents an attempt to analyze the relation of population to volume of construction in the urban residential field, where the relation should be most evident, and where there are the best data with which to work. The fact that it is one of the most important fields from the standpoint of lumber consumption made such an analysis desirable as part of a survey of national timber requirements being made by the United States Forest Service.² Since urban residential buildings constitute a large factor in the total volume of construction, the analysis should be of interest to builders and to manufacturers of building materials generally, as well as to architects, realtors, and others who would be affected by changes in building trends.

The analysis is for the period from 1920 to 1930 and is based on data from 243 cities of 25,000 population and greater. Population data are from reports by the Bureau of the Census and data on residential construction are from reports by the Bureau of Labor Statistics.

¹ P. K. Whelpton, "Population," 38 *American Journal of Sociology* 825 (May, 1933).

² This article is an outgrowth of a survey of our national timber resources and requirements which the United States Forest Service is making. The survey is one of the most fundamental and important projects the Forest Service has ever undertaken, and includes a comprehensive and detailed investigation of: (1) the present and prospective wood requirements of the nation; (2) the drain upon the nation's forests through cutting and through loss by fire, insects, and disease; (3) current and potential growth; (4) existing resources by volume and area; (5) and, finally, the interpretation of these findings in their relation to each other and to other complex economic factors and trends as a solid foundation for sound forest land use planning nation-

ally, regionally, and locally by public and private agencies.

Although the bulk of the effort thus far has been devoted to the fourth phase listed above, considerable attention has been given to the first or requirements phase. A major item in the requirements is lumber used in building construction. The amount of lumber required for this obviously depends upon the volume of such construction. The author has attempted an analysis of residential construction in its relation to population, which has been the controlling factor in the past and the only one on which data were available for analysis.

Number of families^{*} is better than population as an index of living units which should be provided. The number of families varies with population and persons per family. These two factors are indicated on Chart I by vertical bars and lines. The hollow bars show the increase or decrease in number of families; the lines within the bars represent change in population; and the difference in the respective heights of these two measures represents change in persons per family unit.

Each bar on the chart is the average of 10 cities, excepting the last one, which includes only three. The cities were first arranged individually in order of percentage of increase in number of families. They were then grouped by tens, in order to reduce the size of the chart.

A certain increase in population, assuming no change in persons per family, sets up a definite requirement for dwelling units. This requirement is expressed, for convenience, on the basis of 10,000 population. For example, an increase of 25% in population over a decade for a city of 100,000, and 4 persons per family unit, represents a requirement of 6,250 new units, which is 62½ new units per 10,000 population, or an average of 62½ units annually. Line A represents this conversion of increase in population to living units required annually per 10,000 population. The line necessarily follows closely the percentage increase in population, but some irregularity occurs because of the differing size of family in different cities. That is, for a given percentage increase in population, a city with 3.8 persons per family would need more accommodations per 10,000 population than a city with 4.2 persons per family.

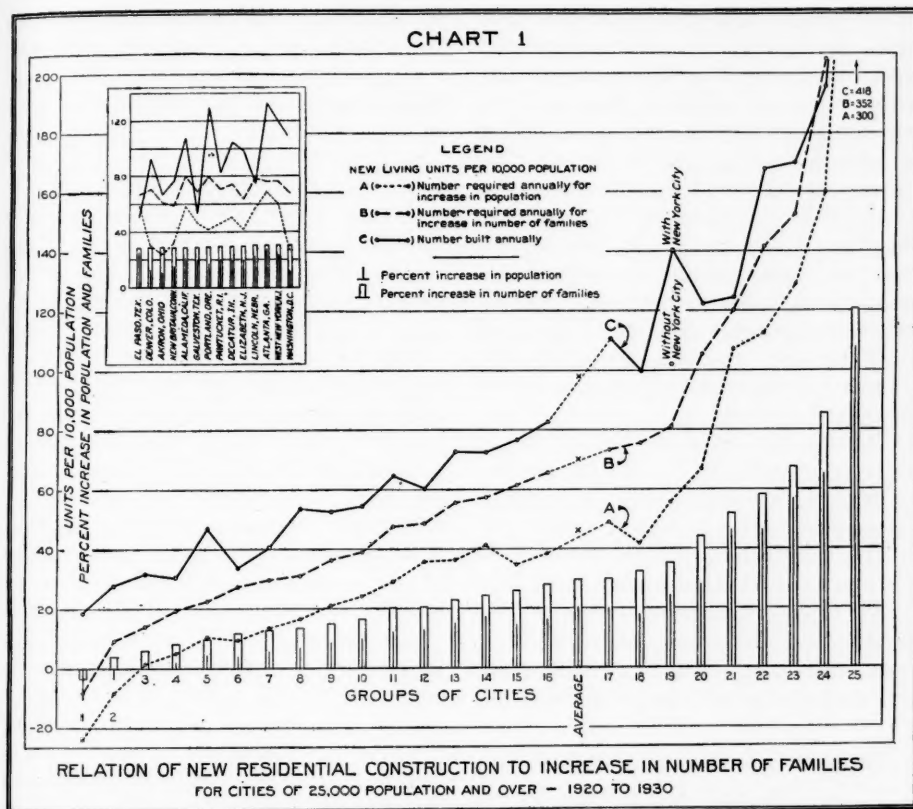
^{*} "Family" is defined by the Census as being a group of persons who live together as one household. A single

The grouping of cities has the advantage of minimizing this variation between cities. (The degree of variation within a group is illustrated by the 10 cities shown in the inset).

Similarly, the increase in number of families has been converted to equivalent living units required per 10,000 population, and is represented by line B. It takes into account change in persons per family, which does not enter into line A. For example, assuming that persons per family were to decrease from 4.0 to 3.8 while the population increased from 100,000 to 125,000 as before, then number of families would increase from 25,000 to 32,895, or approximately 31.6%, in contrast to the 25% increase in population. This increase in families of 7,895 is 789.5 per 10,000 population over a 10-year period and represents an annual requirement of 78.95 new units per 10,000 population. Line B follows roughly the percentage increase in families, just as line A follows the growth in population, and again some irregularity results from differences between cities with respect to persons per family.

Line C represents the average number of family units built annually in these 243 cities from 1920 to 1930, expressed in terms of 10,000 population as of 1920. That is, line C is actual construction, compared with A and B which are theoretical requirements derived from population and family trends. Volume of residential construction is really based on building permits. In some instances more than one permit was issued for the same job, and in other instances permits were issued for jobs never completed. The error is probably not appreciable, but the curve

person living alone is a family, and, at the other extreme, inmates of an institution or persons living in a boarding house are counted as a family.



will tend to show construction higher instead of lower than actual. Irregularity in line C is to be expected, since it reflects vacancy, demolition, and the conversion of dwellings to other uses, factors which vary greatly from city to city. Some cities build up a large vacancy and others a small one. Demolition and conversion are likely to be larger in rapidly growing cities than in more stable communities.

What the Chart Shows

The general trend is the same for lines A, B, and C.

The spread between lines A and B represents the factor of decreasing persons per family independent of change

in population. Other things being equal, there should be a slight gradual widening of this spread. That is, a decline from 4.25 to 4.00 persons per family is equivalent to an increase of 16 families for each 10,000 population when the increase in population is 10%, and 22 families when the increase in population is 50%. Thus:

	Number of Families for 11,000 Persons (10% Increase in Population)	Number of Families for 15,000 Persons (50% Increase in Population)
4 persons per family	2,750	3,750
4.25 persons per family	2,590	3,530
Difference (10 years)	160	220
Annual difference per 10,000 population	16	22

The greater irregularity at the right of the chart, which is no doubt associated with very rapid population growth, makes it more difficult to gauge the spread between lines A and B. That the spread averages slightly greater for the upper half than for the lower half of the chart is shown by the fact that the spread for the lower half is less than the "average" for all cities. However, the factor is rather small, and for practical purposes it can be assumed that the average spread between lines A and B holds about the same for all parts of the chart.

The same may be said for the spread between lines B and C, the latter representing the combined factors of vacancy, conversion, and demolition.

The high volume of construction for Group 19 shows the influence of New York City. Chicago is also in this group, but Chicago is more nearly in line with the average for the other cities of the group than is New York.

Prospective Residential Construction

If the influences represented by the spread between lines A and B and between B and C are to continue for the present decade as they did in the last, the prospective dwelling requirements can be estimated directly from Chart I somewhat as follows:

The total urban population of the United States for 1920 was given as 64 million.⁴ Total increase in population to 1930 was over 16 million, and this is credited entirely to the urban classification, making the 1930 urban

population 80 million, or an increase of 25% from 1920, compared with the average of 20% for the cities on the chart which comprised approximately 55% of total estimated urban population. The difference between the 20% and 25% might be accounted for by the fact that rate of increase was much greater for the suburban population in metropolitan districts than in the cities proper.⁵ An increase of 10 million in the urban population for the present decade would be 12½% based on the 1930 population of 80 million, and that is approximately the increase shown by Group 11 on the chart. The assumption is then that this part of the chart represents the prospective requirements for the present decade, if urban population increases 10 million. An increase of 10 million people means approximately 2½ million families, which is equivalent to 31 family units per 10,000 population annually (based on the 80 million for 1930). Group 11 on the chart shows 29 units for increase in families. To these 31 units are added 17 units per 10,000 to take care of decrease in persons per family,⁶ compared with 19 units for the cities in Group 11, and another 17 units for vacancy, demolition, and conversion, making a total of 65 units per 10,000 population, which is approximately what line C shows for a 12½% increase in population.

On the basis of 65 family units per 10,000 population, the prospects are for an average of 520,000 new family units annually over the present decade, compared with 700,000 annually during the

⁴ This includes all cities of 2,500 population and over, together with suburban population, which is really urban so far as residential construction is concerned.

⁵ In "The Rise of Metropolitan Communities," *Recent Social Trends*, (New York: McGraw-Hill Book Co., Inc., 1933), Vol. 1, p. 462, Mackenzie shows that the total population of 85 metropolitan districts with populations over 100,000 was 40,057,000 in 1920 and

50,043,000 in 1930, an increase of 24.9%. The increase amounted to 19.4% in the central cities and 39.2% outside.

⁶ From 1920 to 1930 the decrease for all cities was from 4.28 to 4.04, or 5.6%. If the same percentage decrease is assumed for 1930 to 1940, persons per family will decrease from 4.04 to 3.81, which is equivalent to 17 units per 10,000 population.

last decade.⁷ Or the anticipated urban residential construction for the present decade would then be approximately 75% of construction for the decade 1920 to 1930.

However, this assumes that the factors of persons per family, vacancy, demolition, and conversion will continue the same as from 1920 to 1930, which may not be the case. There was a housing shortage in 1920 contrasted with a surplus in 1930. Estimates place the housing shortage at about a million and a quarter units by the end of 1921. That would represent an accumulated need equivalent to 20 family units per 10,000 population, leaving 5 to 10 units of the spread between lines B and C for vacancy, conversion, and demolition. In 1930 there was no such accumulated need, and apparently a corresponding correction should be made if estimates for the present decade are to be based on the last one. The anticipated urban residential construction would then be 50 family units per 10,000 population, or an average of 400,000 annually for the present decade compared with 700,000 from 1920 to 1930.

As a prospect this involves the further, uncertain factor of persons per living unit, which depends not only upon such elements as number of children in the normal family, but economic conditions generally. Decline in persons per living unit was about 5.6% from 1920 to 1930, but reports indicate some doubling up during the present depression. So far as decline in persons per family is dependent upon favorable economic conditions, which encourage families to spread out, the prospects are not what they were during the last decade. A drop of 5.6% in size

of family would be necessary to hold the estimated 17 units per 10,000 population attributed to that factor. That is to say, 136,000 of the 400,000 new family units annually anticipated above are dependent upon this decrease in number of persons per family or household.

With an analysis of volume of residential construction as above, our estimates of prospective requirements can be definitely revised at any time to take care of changing known factors. That is, instead of a 10-million increase in population by 1940, changes in immigration or birth rate may later warrant an estimate of an 8-million or a 12-million increase. Or, with an increase of 10 million, there may be a return-to-the-farm movement, to leave only 8 million for increase in urban population. Similarly, the average family may be 3.9 persons instead of 3.8. Corresponding dwelling requirements can be arrived at for any such condition.

The conspicuous weakness in the present analysis lies in our lack of knowledge concerning vacancy, conversion, and demolition, or the factors which make up the spread between lines B and C. These factors will largely determine volume of residential construction by 1950, if population forecasts hold reasonably accurate, or they may considerably upset our calculations even for the present decade.

Some figures on vacancy are available. Table I is from a 1932 survey by the Division of Building and Housing of the Bureau of Standards, Department of Commerce. The question arises as to how much greater the vacancy in 1930 was than in 1920, and whether vacancy in 1930 had reached or

⁷ The average for the cities on the chart is 98 units per 10,000 population with an increase of 20% in population. For all cities and a population increase of

25%, the average would be approximately 110 units per 10,000 as of 1920.

exceeded a normal. Denver, for example, shows a vacancy of 6.8% in 1930, and there were 81,910 living units in Denver as of September, 1930.⁸ The vacancy was 5,565 living units or the equivalent of approximately 22 units per 10,000 population as of 1920. This is about

TABLE I. VACANCIES IN FORTY CITIES, 1928-1932

CITY	1928 Per Cent.	1929 Per Cent.	1930 Per Cent.	1931 Per Cent.	1932 Per Cent.
Akron, O.			5.8	8.1	7.8
Allentown, Pa.			3.4	3.5	
Brockton, Mass.			5.4	7.1	
Cedar Rapids, Ia.			2.6	2.0	3.4
Chattanooga, Tenn.					9.7
Chester, Pa.					5.6
Columbus, Ohio			5.9	7.6	
Dallas, Tex.			3.3	4.3	
Denver, Colo.			6.8	6.4	
Des Moines, Ia.			5.1	4.1	4.5
Detroit, Mich.				8.5	
Ft. Wayne, Ind.		3.7	2.8	2.8	5.3
Indianapolis, Ind.		6.3	9.4	8.8	
Kansas City, Mo.			8.8	10.1	10.3
Lansing, Mich.				15.9	6.3
Little Rock, Ark.				9.8	
Long Beach, Cal.				6.8	
Los Angeles, Cal.			8.9	11.2	8.0
Louisville, Ky.					
Apartments				15-18	17-18
Single houses				5.7	4.8
Madison, Wis.				3.4	4.3
Milwaukee, Wis.				4.0	
Oakland, Cal.				7.9	
Oklahoma City, Okla.					5.6-7.3
Pasadena, Cal.					4.1
Portland, Ore.		5.4		8.2	
Pueblo, Colo.			6.8	8.9	
Rockford, Ill.				6.8	9.5
Rochester, N. Y.				6.2	6.3
St. Louis, Mo.				8.7	
St. Paul, Minn.	4.0		4.2		
Salt Lake City, Utah			3.4	5.3	
San Antonio, Tex.					
Apartments				26.5	10.0
1 & 2-family houses			5.3	4-10	5.5-11
San Diego, Cal.					7.3
Springfield, Mass.		3.6	4.5	4.4	
Syracuse, N. Y.			5.2	4.8	4.9
Tampa, Fla.			11.8	9.5	7.5
Toledo, Ohio		2.2	4.7		
Trenton, N. J.				5.1	
Tulsa, Okla.					
Apartments			13-15	26.0	
1 & 2-family houses			8.0	8.6	
Washington, D. C.					
Apartments		9.9	7.1	7.8	

the spread between lines B and C for Denver. (The inset on the chart shows Denver as second from the left.) If there was little vacancy in Denver in 1920, then the accumulation of the 1930 vacancy makes up most of the difference between B and C, and leaves the factors of conversion and demolition relatively

insignificant. Or, if the percentage of vacancy was the same in 1920 as in 1930, then vacancy was a small factor. A vacancy of 6.8% would be 4,520 units in 1920 compared with 5,565 in 1930—an increase of 1,045 vacancies—which is the equivalent of only 4 units per 10,000 population. The factor of increased vacancy in Denver may, perhaps, be placed somewhere between the 4 units per 10,000 population as a minimum and the 22 as a maximum.

Is 6.8% vacancy in excess of normal? If so, then the excess as of 1930 must be deducted from the prospective requirements for the present decade.

As to conversion and demolition, there is even less to work with than in the case of vacancy. Conversion works both ways. A dwelling converted to a store reduces available dwelling units, but a single-family dwelling converted into two or more living units increases the available units.

Demolition may be by fire or storm, or may be the result of obsolescence. Records of losses by fire, storm, and the like, may adequately represent such factors. Obsolescence, however, is the more important and the one on which there is most uncertainty. Even where records of demolition are available, there is too little known of the elements involved. For instance, demolition has been closely associated with growing population. Growth of cities means expansion of commercial activities; even when regulated, this means encroachment upon residential areas and, where suitable restrictions were lacking, has been a considerable factor in creating blighted areas. Obsolescence developed under such conditions cannot without more careful study be taken as representative of the age at which dwellings will be replaced in future.

In spite of the fact that economic

⁸ From Real Estate Inventory and Vacancy Survey in Denver, *University of Denver Business Review*, November, 1930.

conditions were favorable to it, demolition was not a large factor in volume of residential construction from 1920 to 1930 on the basis of the above analysis. The spread between lines B and C represents an average of 27 units per 10,000 for the cities on Chart I, and some 20 of these might be accounted for by vacancy, if figures available are representative, leaving 7 units for demolition and conversion.

On the other hand, two-thirds of the present urban population has been added since 1890, so that housing for at least that proportion is less than 43 years old, and replacement has not had time to develop. Assume the average life of dwellings to be 40 years and eventually the replacement of 20 million urban living units represents a prospective construction volume of 500,000 units annually, which is about what urban residential construction averaged from 1910 to 1930. If average age is to

be 60 years, that reduces the prospect to 330,000 units annually which will develop at a correspondingly later date. Is physical deterioration or obsolescence the factor which determines the age of replacement and how is it brought about?

Facts are at present lacking where-with to answer such questions as this or to make possible any dependable estimate of the degree to which such factors affect replacement. The lessening influence of population growth in determining future construction volume is unquestioned. As economic conditions improve, replacement must more and more be the measure of our expectations for increased building construction. The primary purpose of this paper, in pointing out the importance of this new major influence, is to emphasize the urgent need for reliable data on obsolescence, deterioration, conversion, and any other factors that contribute to replacement.

The Cost of Money to Railroads, 1900-1930

By FRANK PARKER

THE indiscriminating use of the phrases "cost of capital," "cost of money," and "cost of financing" in the vernacular of railroad finance and valuation has developed a confusing terminology, the result of which has not always reacted favorably in the development of a sound financial program for the railroads. This loose phrasing has not necessarily hampered railroad operators in their routine work, but, carried into valuation and rate proceedings before the Interstate Commerce Commission as well as the state and federal courts, it has tended to obstruct the development of a sound financial policy which in turn has reacted adversely upon rate structures and service. The significance of this item, "cost of money," to railroad management and owners seeking to attain a fair value for their property and a reasonable rate of return thereon will be more fully appreciated when it is realized that the lack of a precise, definite concept of the essential nature of the cost of money has in past valuation proceedings often cost railroads anywhere from 3 to 6% of their rate-base.

As a matter of convenience, the consideration of this subject has been divided into three heads: (1) a statement of what the cost of money is; (2) a brief survey of what were the actual costs of money to railroads in United States for the period 1900-1930 inclusive; and (3) a discussion of the reasons for capitalizing the cost of money.

Cost of Financing Defined

The cost of financing to railroads and public utility companies is composed of

two distinct elements: (1) the mechanical cost of financing, including therein all costs of preparing, printing, engraving, registering, and distributing security issues, whether stock, bonds, or notes, as well as the cost of recording mortgages and other necessary papers, trustees' fees and expenses, and so forth; and (2) the cost of obtaining money realized from the sale of such securities, whether such cost be incurred in the form of direct expenses paid by the company—where securities are sold direct by the company to the investor—or as sums paid to bankers for their services in effecting the sale of the company's securities.

Interstate Commerce Commission's Concept of Cost of Money

Despite the particularity with which the Interstate Commerce Commission dealt with the various items to be included in the valuation of a railroad's property under the cost-of-reproduction-new theory as set forth in the Commission's decision in Valuation Docket No. 2, Texas Midland Railroad Company (75 I. C. C. 1) and in subsequent valuation and recapture proceedings, the Commission has never made any separate allowance for the cost of money. Specifically in the Texas-Midland case the Commission said:

"The cost of obtaining the money with which to finance the construction of a railroad has been frequently and perhaps usually treated as an overhead. After mature consideration, it has been thought best in reporting cost of reproduction new to show nothing on this account as such but to include any necessary charge of that character in the interest rate."

¹ In include separate and for is, necessary period,

It is clear from the discussion in paragraph 3 in the Texas Midland case that the allowance of 6% for interest during construction is meant to include not only interest but an item entirely independent thereof and inherently different in nature, namely, the cost of obtaining money. For the Commission says at page 154 of the Texas Midland report that:

"Six per cent is the legal rate of interest in a large section of this country where no other rate is specified. An examination of the sale of bonds of various kinds for the five years preceding June 30, 1914, led to the belief that this rate would be ample to cover not only the interest on the money but any brokerage which would usually be charged for the obtaining of the money. It has been assumed, therefore, that at 6 per cent whatever money is needed can be obtained, and that this rate of interest will cover the entire cost of obtaining the money."¹

Practical Effect of Commission's View

With these conditions in mind it is pertinent to inquire how the Commission's method of making an aggregate allowance per annum for the cost of obtaining money and interest during construction works out with reference to two railroads each 1,000 miles in length, which for purposes of convenience may be designated Railroad A and Railroad B. Under the theory of reproducing the property new, construction work on Railroad A, because of favorable connections with other railroads already in existence, might be commenced at five or six different points and progress simultaneously from each of these points. On the other hand, the construction new of Railroad B which is projected into new territory

having no other railroad connections would have to start at some one particular point and proceed with each subsequent stretch of mileage only after the preceding stretch had been completed. Clearly, the time consumed in constructing Railroad B would be substantially longer than the time consumed in constructing Railroad A. Hence, under the Commission's method of handling cost of obtaining money and interest during construction, Railroad B obviously would be credited with a larger allowance of interest during construction than Railroad A, and consequently the Commission's allowance for the cost of obtaining money would be proportionately less for Railroad A—in view of the fact that both of these items are presumed to be taken care of by an overall allowance of 6%—although as a matter of fact the actual cost of obtaining money might be practically the same for both railroads. Indeed, it is conceivable that the cost of obtaining money for Railroad A might be higher than for Railroad B.

This method of calculating the cost of obtaining money adopted by the Commission, making that cost vary directly with the period of time assumed necessary for the construction of the railroad, fails entirely to take into consideration the true nature of this capital cost. The cost of obtaining money is a perfectly definite item irrespective of and having no relation to the duration of the construction period and the interest accruing during such period. The builders of a railroad property would be obliged to pay substantially

¹ In passing it may be noted that no method which includes within an aggregate allowance per annum separate allowances for the cost of obtaining money and for interest during construction, which latter item is necessarily predicated on the assumed construction period, can give an accurate figure for the cost of ob-

taining money, because under this method this cost will necessarily be increased or decreased as the assumed construction period is long or short, respectively. Under the Commission's methods, as expressed in the Texas Midland report, all existing means of transportation aside from the property itself which is under reproduction are assumed to exist.

the same amount for the funds necessary to construct the property regardless of the length of time necessary to complete such construction. The cost of obtaining money depends entirely upon other factors, such as conditions prevailing in the money and investment markets, the type of security issued, the prospective earning power of the railroad about to be constructed, et cetera, hereinafter explained in detail.

Another serious objection to the use of an aggregate allowance per annum to cover both cost of money and interest during construction is that it results in inadequate allowances for both items. In arriving at 6% as the amount to be allowed for both items, the Commission has made several assumptions, as appears from the following language taken from the Texas Midland report at page 154:

"The most important factor in determining the cost of obtaining the money and the rate to be paid for the same would be the credit of the borrower. The United States Government could probably borrow the money in normal times for from 3 to 3½ per cent. A strong railroad with the best of credit could obtain it for approximately 4½ per cent. A weak railroad might not be able to obtain the necessary funds at any rate without financial support, for which it must pay in some form.

"It was felt at the outset that it might be necessary to determine in each case the cost of obtaining this money; that is, that inquiry must be made into the credit of the company and the circumstances which would surround its financing. Further reflection, however, showed that this would be an almost impossible task, and that the result would be misleading rather than informing. On the whole it seemed best to assume that the credit available when the property was being reproduced was in all cases good and the same; that money would be obtained at the same rate and supplies purchased on equally advantageous terms. Upon no other theory would the cost of reproducing the different properties be fairly comparable."

The report then goes on to state that the allowance of 6% should be ample to cover not only the interest on the money but any brokerage which would usually be charged for obtaining the money.

Credit of Individual Railroads Varies

In connection with the assumption that the credit available when the property would be reproduced would in all cases be good and the same and that money could be obtained at the same rate, it is, of course, a matter of common knowledge that the credit of railroad corporations, just like that of all kinds of business corporations, differs widely for many reasons. Among the elements to be considered in determining the credit risk of a railroad are the size of the system; whether it is already in operation or its construction is merely contemplated; the character of the operating conditions of the road.

The second assumption made by the Commission is that strong railroads with the best of credit can borrow money at par on obligations bearing 4½% interest. This might perhaps be true of certain strong railroads enjoying the best of credit and under favorable conditions; but a study hereafter presented indicates that representative Class I railroads, which are going concerns and not railroads under construction, had to pay approximately 5½ to 6% for money during the period 1910 to 1930. However, it should be pointed out that under the language of the Texas Midland report the allowance of 4½% is said to be adequate only for a strong railroad with the best of credit. It follows, of course, that for any railroad enjoying less than the best of credit, the rate which it would have to pay would be higher than 4½%. Particularly is this true of a railroad about

to be constructed and having no record of earnings behind it. Such a railroad would undoubtedly have to pay more for the use of money than a going railroad with high credit rating.

The next assumption involved in the Commission's method is that the remaining $1\frac{1}{2}\%$, after deducting the $4\frac{1}{2}\%$ for interest, constitutes a sufficient allowance for the cost of obtaining money. If it be true that a railroad under construction would have to pay a higher rate of interest than $4\frac{1}{2}\%$, it is of course true that the residue of the 6% allowance would be correspondingly decreased and such a railroad would get out of the 6% allowance something less than $1\frac{1}{2}\%$ for cost of obtaining money. It is even possible that the entire 6% allowance would be consumed in the interest which would have to be paid and that there would be nothing left as an allowance for the cost of obtaining money. It does not follow, however, that a railroad without the best of credit, and particularly a railroad under construction, would not have to pay as high a cost for obtaining money as a railroad with the best of credit. The fact is just the opposite.

Perhaps the largest market for railroad securities is afforded by banks and other financial institutions which hold them as investments. A railroad in embryo, untried and unseasoned, with its business yet to be developed and its operating problems yet to be solved, presents to the banker and to the investor an enterprise whose earnings are largely problematical and uncertain. Faced with this situation, reputable investment bankers, seeking to retain the confidence of their clientele, have repeatedly declared that any attempt to market such a railroad's securities would meet with serious practical ob-

stacles. Consequently, it would require a greater degree of sales effort to market the securities of a brand new railroad than to sell the securities of an established railroad with a satisfactory record of earnings behind it, and this degree of sales effort would undoubtedly be reflected in the spread or brokerage fee which the bankers would require for their services in marketing such a security. Hence, the allowance of $1\frac{1}{2}\%$ for the cost of obtaining money, even if it were made available to a new railroad in the process of construction, would undoubtedly be insufficient to obtain the money required for the construction and development of its physical plant and equipment.

What the Cost of Financing Is

A sound economic concept of the cost of financing is materially different from that embodied in the foregoing definitions of the Interstate Commerce Commission. As previously defined, the cost of financing to railroad companies is composed of two distinct elements: (1) the mechanical cost of financing; and (2) the cost of money realized from the sale of securities. Careful examination of the records of different railroads and public utilities shows that the item of mechanical cost will range from $\frac{1}{4}$ to $\frac{1}{2}$ of 1% of the net cash received by the company. It is important to keep this fact in mind for in the figures subsequently submitted, showing the cost of obtaining money to steam railroads in United States, no allowance for the mechanical cost of financing has been made; the cost of money has been limited to item (2) above, representing the sums paid to bankers for marketing the securities, or brokerage.

Distinction between Cost of Money and Discount

In view of the fact that much muddled terminology centers about cost of obtaining money, or brokerage as it is sometimes called, and discount, it is necessary to distinguish briefly between these two terms. Discount is a function of the interest rate and therefore of time, in that it is an adjustment of the stated rate of return on securities to current yields prevailing in the investment market at the time the security is offered to the public. On the other hand, the cost of obtaining money is compensation for services rendered by bankers and is in no sense a function of time.

The difference between the par value of a bond and the price paid for it by the investor represents an adjustment of interest which, when averaged over the life of the bond in conjunction with the interest periodically paid by the company, gives the investor an average yield approximating the current yield for securities of the character in question. Thus, for example, the railroad may be able to sell to an investment banker a 10-year first mortgage 7% bond at a price which will enable the latter to offer this bond to the public at par. In this event there is no discount as the term has heretofore been defined. On the other hand, the railroad may sell a 6% 10-year bond to the bankers at a price which will enable them to offer it to the investing public at 92.89, which represents a 7% basis when interest is paid semi-annually. In either event, the bondholder buys a security which, if he holds it until maturity, will show him a yield of 7% per annum on the money which he has invested. In the first case, he receives 7% in each and every year, while in the second case he receives in advance the

equivalent of something over $\frac{1}{2}$ of 1% per annum for the entire period (representing the difference between par and the price which he pays for the bond, namely, 92.89) and thereafter interest at the rate of 6% per annum upon the face amount of the bond, which is equivalent to 6.46% per annum on the cash price which he paid for the bond. It is clear from this illustration that a corporation about to issue securities has, *at least in theory*, the choice between issuing a security which carries a rate of interest sufficiently high to enable it to be sold to the ultimate investor at par, or, on the other hand, of issuing a security of the same characteristics, except that its coupon rate is lower, in consequence of which it can be sold to the ultimate investor only at a discount.

The phrase "at least in theory" is emphasized because the repeated assertion that the cost of obtaining money can be eliminated or avoided by increasing the face interest rate of the security to meet prevailing market conditions ignores the conditions confronting corporations seeking to raise money through the sale of securities. Arbitrarily to increase the face interest rate of the security might avoid bond or stock discount as the term is herein applied, but it does not warrant an assumption that the sale and distribution of securities, whether conducted by the railroad itself or by bankers, can be prosecuted without expense. The cost of obtaining money invariably represents a legitimate expenditure for services which have actually been rendered in the sale and distribution of securities. Indeed, the attempt to eliminate discount and the cost of obtaining money by raising the face interest rate of the securities in question might actually result in the railroad

experiencing unwonted difficulty in marketing its securities or in stressing the two factors which were sought to be eliminated.

The problem is one involving conditions somewhat more complicated than a simple arithmetical computation. For example, the mere fact that a railroad recently organized in a relatively new territory was attempting to market its bonds bearing a face interest rate of 7 or 8%, when the yield then prevailing in the investment market was but 5%, would immediately arouse the suspicion of investors. Investors might well look askance at a security whose face interest rate was so far out of line with current yields of similar securities, and might regard the attempt to dispose of such a security as a complete confession of lack of credit on the part of the railroad or of some inherent defect in its business or financial program. The effect would be much the same as that produced by a merchant possessing a supposedly A-1 line of credit hawking his promissory notes bearing an interest rate of 10% about a market where the prevailing cost of money was only 6%. Conservative investors seldom expect to get something for nothing, particularly in the matter of interest rates, and the mere offer of a security bearing a face rate of interest disproportionately out of line with current yields would in all probability prove such a deterrent to prospective purchasers as to hinder effectually the distribution of the security. With this situation confronting either the railroad or the banker, it is evident that the amount of time and effort required to complete the sale of the security will be tremendously enhanced—the expenses incident to administration, sales, and advertising will undoubtedly increase—and this increased cost of selling

will be reflected in a higher cost of obtaining money.

Cost of Money Represents Payment for Actual Services

As distinguished from discount, the cost of obtaining money or brokerage represents the difference between the price at which securities are sold to the bankers by the railroad and the price at which the bankers in turn sell them to the investing public. It includes a reasonable compensation to the bankers for their services in marketing the securities and forwarding the funds received to the railroad; the expenses incurred by the bankers in having a complete engineering survey and report made concerning the material factors likely to affect the development of the enterprise, and having an analysis or prognosis made of operating revenues and expenses by a recognized firm of public accountants, together with all the expenditures incident to negotiations with the promoters of the enterprise; and it also covers the sums of money expended in planning and developing adequate advertising and sales campaigns. In addition to the foregoing services of the banker, there is another element which is included in the banker's charges, to wit: the element of risk assumed by the banker in underwriting the issue. This factor in the cost of obtaining money is really compensation for insuring the enterprise against risk of loss from unexpected changes in the investment market, the untimeliness of the issue, or misjudgment of the salability of the security, etc. Finally, the compensation to the banker covers the time, effort, and money expended by him in maintaining a market for the securities immediately following their flotation. For it is a matter of common practice for investment bankers

to take such steps as are necessary to maintain the price of new securities at or about the price at which they were originally offered to the public, in order that unexpected and perhaps untoward activities in the security market may not be reflected in the market price of the securities in question and thus give an inaccurate impression of their inherent value.

Economic Justification of Brokerage

There is a positive economic justification of the cost of obtaining money or brokerage. Much of the misconception concerning the cost of money arises through a failure to appreciate the nature of the transaction by which bankers are used as intermediaries in the distribution of securities. It is erroneously regarded as essentially different from a transaction by which the original owners of an enterprise, living in the community in which the enterprise is developed, contribute the initial capital for its organization and development. Were the citizens of a community desirous of having a public utility supply them with electricity, water, gas, or transportation service, they would immediately be confronted by the difficulties of raising sufficient capital to build the plant and set it in operation. If the money were raised by capital stock, an advertising and selling campaign would be necessary to persuade the investors of the particular community to subscribe to the stock of the proposed enterprise. If the stock were sold at par directly by the railroad itself, with no bankers or any other intermediary acting as an agent in the distribution of the securities to the public, except perhaps the employees of the new company, there would still be the cost of raising

money by the sale of the company's securities equivalent to the total expenditures incurred in marketing them to the local investors, and represented by engineering surveys and reports, sales commissions, advertising, printing and stationery, transportation, postage, etc.

Essentially, there is no difference between the foregoing situation and one where the railroad hires an investment banker whose business it is to sell securities, who has an organization and trained staff, the technical knowledge, the banking connections, and the clientele. Viewing the matter from the standpoint of cost alone, much is to be said in favor of distributing securities through bankers. Indeed, there is substantial evidence that enterprises lacking established earning power and operating in comparatively undeveloped territories can frequently obtain their funds cheaper through bankers than through direct sales to the public.²

Factors Affecting Cost of Money

The factors conditioning the cost of obtaining money are numerous and their relative significance will vary in individual cases. The cost of acquiring money varies with (1) existing conditions in the money market, (2) the type of security issued, (3) the size of the block of securities being marketed, (4) the general reputation of the type of enterprise seeking the capital, (5) the location of the enterprise, (6) the extent to which the territory served has been developed, (7) the present and prospective earning power of the property, (8) the character and ability of the management together with the financial and business affiliations of the enterprise, (9) the degree to which

² See author's earlier article, "Cost of Money to Public Utilities in the United States, 1914-1922," 2

Journal of Land & Public Utility Economics 73-92 (January, 1926).

speculative risks are involved, and (10) the character and extent of the regulation and control to which the enterprise is subjected. No extended explanation need be given of most of the foregoing factors. In considering the subsequent material in which the cost of obtaining money to railroads in the United States is set forth in detail, it should be remembered that all these factors operate with varying degrees of intensity, depending upon the circumstances surrounding the particular railroad.

Cost of Money to Railroads—Scope of Study

To ascertain exactly what was the cost of obtaining money to steam railroads in United States during the period January, 1900 to December, 1930, this study has been made. In order to calculate accurately the cost of obtaining money to steam railroads in United States, it was necessary to obtain data showing the total par value of the various types of securities issued by the railroads; the price received by the railroads from the bankers to whom the securities were sold; and the price received by the bankers from the sale of these securities to the public. The foregoing data were collected from the published records of the Interstate Commerce Commission; from annual reports of the steam railroads to the Interstate Commerce Commission; from bankers interested in marketing the securities to the public; and from various financial manuals and periodicals.

The price at which the bankers disposed of railroad securities to the public was taken from the Investment Intelligence Section of the *Commercial and Financial Chronicle*. In numerous cases neither the records of the Interstate Commerce Commission nor the *Commercial and Financial Chronicle* con-

tained the price received by the railroad from the bankers, nor the price at which the bankers sold the securities to the public. To secure these data recourse was had to the files and records of the investment bankers who had been the managers of or participants in the syndicates engaged in distributing the securities to the public.

This study of the cost of obtaining money to steam railroads is therefore a study showing, in so far as data were available, the actual cost of obtaining money to steam railroads in the United States. Only those securities were included in this study for which at the time of issuance the railroad received cash and which, according to the records and publications previously referred to, were disposed of by the bankers to the public for cash. Stated otherwise, wherever there was any doubt whether the railroad received payment in cash or whether the identical block of securities was sold to the public for cash, the security issue in question was excluded from this study.

The results of this study are set forth in Table I, titled Cost of Money to Steam Railroads in United States, 1900-1930. No cost of obtaining money raised through the sale of preferred or common stock appears in Table I, for the reason that data were not available concerning these types of securities upon which such a cost could be predicated. This condition is largely to be accounted for by the fact that the original issues of preferred and common stocks of railroads included in this study were usually distributed to the developers of the railroad in question or to the construction company which originally built the railroads, and also by the fact that subsequent stock issues were generally absorbed by the stockholders of record at the time the stock was issued, and for which, con-

sequently, no data were available comparable to those on which the cost of other capital was computed.

Wherever blank spaces appear in any of the columns in Table I it means that no data were available for that year concerning the cost of obtaining money for that particular type of security.

While it would have been desirable perhaps to make this study embrace all Class I steam railroads operating in the United States, such a procedure was not practical. It was impractical to include in this investigation all security issues concerning which scattered and piecemeal information might have been gathered from one of the sources heretofore referred to; to have attempted accurately to compute the cost of obtaining money to smaller steam railroads in the United States would have entailed a fruitless expenditure of time because of the insignificance of the par value of securities floated by these smaller railroads when compared to the total par value of securities covered by this investigation. It should be recognized, furthermore, that to have included in this study all Class I steam railroads in the United States would have laid the study open to the criticism of giving undue weight in the calculation of the cost of obtaining money to the smaller railroads whose operating conditions, earning power, and management are perhaps not to be regarded as typical. The railroads included in this study were selected primarily because, with due allowance for their size and earnings, they represented railroads whose securities were generally acceptable to the investing public. This fact must be borne in mind when figures for the cost of obtaining money raised through the sale of bonds, equipment trust certificates, and notes are considered in the subsequent discussion.

The original list of railroads, upon which this study was presumably to be based, consisted of 36 Class I railroads in the United States. This original list was later reduced in number because it was impossible to secure accurate or complete information showing the cost of obtaining money thereto, so that the completed study represents the cost of obtaining money to 24 principal Class I railroads whose names appear in Table I.

Before any attempt was made to calculate the cost of obtaining money on a yearly basis, it was first necessary to compute this cost to the individual railroad by dividing the amount of the bankers' commission by the net cash received by the railroad from the sale of each block of securities issued. The various issues of each type of security—bonds, equipment trust certificates, and notes—were then grouped by years; and after this grouping was completed, the annual weighted average and the annual simple average cost of obtaining money were calculated. In calculating the annual weighted average cost of obtaining money for any particular year the total amounts of net cash received by the railroads during the year were added together; a total was struck of the bankers' commissions for the security issues in question and this latter figure was then divided by the total net cash received by the railroads, the answer being expressed as a percentage in the extreme right-hand column of Table I. The annual simple average cost of obtaining money for each type of railroad security was computed by adding together the percentage costs for each individual issue floated during the year and dividing the total percentage thus obtained by the number of issues floated.

It should be emphasized that the weighted average cost of obtaining

money attaches undue significance to the large security issues, for if in a particular year 10 separate issues are marketed to the public with a total par value of \$100,000,000 and one issue of the 10 has a total par value of \$50,000,000, it is evident that in the annual weighted average cost of obtaining money the \$50,000,000 issue will have a weight of 50% whereas it represents only 10% of the total number of issues floated during the year. In this connection it must be remembered the larger railroads with firmly established earning power and credit possess correspondingly large financial structures, and this in turn involves the flotation of large blocks of securities, the cost of obtaining money on which, because of the sound reputation which the larger railroad usually enjoys, is generally less than the cost incurred in the flotation of a smaller block of securities by a smaller railroad. It follows from the explanation in the preceding illustration that this lower cost of money on large blocks of securities tends to reduce the annual weighted average cost. The annual weighted average cost of money therefore establishes the bed-rock minimum.

On the other hand, the simple average method of computing the cost of obtaining money gives the same weight to each issue regardless of its size in dollars and thus establishes generally—unless there is in a given year an abnormally large security issue with a cost of money substantially lower than the cost shown by any of the smaller issues—the upper limit of the cost of money raised through the sale of the various types of railroad securities. Between the weighted average and the simple average cost of money lies the percentage, substantiated by this factual investigation, which measures the cost of obtaining money

generally to railroads in United States.

Interpretation of Table I

The fact cannot be stressed too strongly that the percentage cost of obtaining money shown in Table I, whether the weighted or the simple average be taken as a criterion, is the cost of obtaining money to railroads whose securities generally represent high grade investments, railroads whose record of earnings over a long period of years has led investors to express a preference for them whenever they are committing their funds to railroad corporations. This statement is corroborated by an examination of the ratings given to the securities in question by Moody's *Manual of Steam Railroads*. A search through the foregoing publication as of the year in which a specific block of securities was first offered to the investor shows that, of the 390 individual blocks of bonds and equipment trust certificates (rating for notes seldom being available) included in this investigation, 358, or 91.8%, had a rating of A or better—the highest rating groups assigned to railroad securities by Moody; 24, or 6.2%, had a rating below A; and no rating was ascertainable for the remaining 8, or 2.0%, of the issues. If, instead of the number of issues, a comparison is made of the aggregate par value of the issues, it will be found that there are \$3,819,097,578 par value of bonds, or 89.3% with a rating of A or better; \$395,456,150, or 9.2%, have a rating of less than A; no ratings were ascertainable for the remaining \$59,659,000, or 1.4%. Of the total equipment trust certificates amounting to \$799,231,181 par value \$788,215,181, or 98.6%, were given a rating of A or better; while the remaining \$11,016,000, or 1.4%, received a rating of less than A.

Table I is predicated on approximately \$5,737,152,775 par value of securities floated by railroads from 1900 to 1930 inclusive, with the total number of security issues amounting to 441 and the number of companies included in this investigation totaling 79. Of the total par value of securities included in this investigation, \$4,274,212,728, or 74.5%, represents bonds; \$799,231,180,

or 13.9%, represents equipment trust certificates; and \$663,708,867, or 11.6%, represents notes. An examination of the table discloses that the weighted average cost of obtaining money through the sale of bonds for the period 1900 to 1930 is 3.33%. The corresponding figure for equipment trust certificates is 1.70%; and for notes, 1.18%. The simple average costs for bonds, equipment

TABLE I. COST OF MONEY TO STEAM

YEAR	B O N D S				EQUIPMENT TRUST CERTIFICATES				Par Value A (Dollars)
	Par Value A (Dollars)	Price Received by Company from Bankers B (Dollars)	Bankers' Sale Price C (Dollars)	Bankers' Commission D (Dollars)	Par Value A (Dollars)	Price Received by Company from Bankers B (Dollars)	Bankers' Sale Price C (Dollars)	Bankers' Commission D (Dollars)	
1900	32,547,000	31,150,395	32,277,817	1,127,422					
1901	101,000,000	96,589,600	100,850,050	4,260,450					
1902	51,468,000	48,906,520	51,106,400	2,199,880					
1903	7,000,000	6,605,000	6,975,000	370,000	2,820,000	2,770,650	2,853,840	83,190	
1904	121,492,000	115,109,620	119,975,550	4,865,930	10,790,000	10,483,217	10,523,487	40,270	1,000
Total 1900-1904	313,507,000	298,361,135	311,184,817	12,823,682	13,610,000	13,253,867	13,377,327	123,460	1,000
1905	173,237,000	164,601,845	171,566,695	6,964,850	2,000,000	1,962,600	1,975,800	13,200	7,000
1906	108,534,000	104,142,360	107,069,260	2,926,900	13,180,000	12,635,018	12,834,716	199,698	50,000
1907	132,157,000	117,505,846	122,416,760	4,910,914	7,431,000	6,932,373	7,105,822	173,449	110,050
1908	221,159,000	203,982,678	210,608,085	6,625,407	37,480,000	34,932,307	36,201,400	1,269,093	21,000
1909	235,127,000	221,081,605	226,226,132	5,144,527	1,600,000	1,580,000	1,590,720	10,720	
Total 1905-1909	870,214,000	811,314,334	837,886,932	26,572,598	61,691,000	58,042,298	59,708,458	1,666,160	188,050
1910	183,458,654	166,810,669	174,011,374	7,200,705	18,500,000	17,968,650	18,172,650	204,000	28,220
1911	167,372,274	156,021,038	161,257,671	5,236,633	20,036,000	19,659,955	19,998,990	339,035	60,750
1912	39,950,000	36,991,125	38,628,375	1,637,250	20,780,000	20,429,929	20,804,834	374,905	65,100
1913	142,150,000	134,131,825	138,666,360	4,334,535	56,970,000	55,254,893	55,796,391	541,498	100,721
1914	164,126,000	156,519,620	160,763,622	4,244,002	25,019,000	24,719,597	24,960,499	240,901	105,846
Total 1910-1914	697,056,928	650,474,277	673,327,402	22,853,125	141,305,000	138,033,024	139,733,364	1,700,340	360,638
1915	299,000,000	290,617,724	299,108,750	8,491,026	2,660,000	2,601,400	2,652,248	50,848	67,000
1916	103,947,000	101,002,465	103,704,595	2,702,130	17,560,000	17,437,535	17,769,504	331,969	5,000
1917-1919†									
1920	66,734,000	63,941,630	66,589,384	2,647,754	43,214,180	41,552,113	43,264,180	1,712,067	10,000
1921	352,177,000	326,443,780	342,418,710	13,974,930	16,461,000	16,105,244	16,494,703	389,459	2,000
1922	114,015,800	106,083,029	110,160,038	4,077,009	6,645,000	6,312,750	6,449,637	136,887	
1923	77,697,000	73,347,179	75,441,280	2,094,101	93,653,000	90,460,854	92,441,603	1,980,749	7,000
1924	154,264,000	143,160,277	147,678,665	4,518,388	94,395,000	91,855,080	93,834,539	1,979,459	17,000
1925	146,427,500	137,533,210	141,694,125	4,160,915	29,984,000	29,245,957	29,827,738	581,781	
Total 1920-1925	911,315,300	850,509,105	883,982,202	33,473,097	284,352,180	275,531,998	282,312,400	6,780,402	36,000
1926	127,288,000	120,060,820	123,515,520	3,454,700	61,342,000	59,712,375	60,626,423	914,048	6,000
1927	294,258,500	276,781,199	284,194,691	7,413,492	44,196,000	44,022,879	44,304,795	281,916	
1928	242,553,000	230,671,355	236,684,250	6,012,895	12,765,000	12,728,596	12,804,572	75,976	
1929	24,784,000	22,925,200	23,544,800	619,600	89,445,000	85,595,160	86,391,939	796,779	
1930	390,289,000	368,256,003	377,777,435	9,521,432	70,305,000	69,415,507	69,876,650	461,143	
Total 1926-1930	1,079,172,500	1,018,694,577	1,045,716,696	27,022,119	278,053,000	271,474,517	274,004,379	2,529,862	6,000
Total 1900-1914	1,880,777,928	1,760,149,746	1,822,399,151	62,249,405	216,606,000	209,329,189	212,819,149	3,489,960	549,688
1905-1914	1,567,270,928	1,461,788,611	1,511,214,334	49,425,723	202,996,000	196,075,322	199,441,822	3,366,500	548,688
1910-1930	3,090,491,728	2,911,298,148	3,005,839,645	94,541,497	723,930,180	705,078,474	716,471,895	11,393,421	474,638
GRAND TOTAL 1900-1930	4,274,212,728	4,020,973,617	4,154,911,394	133,937,777	799,231,180	776,374,639	789,557,680	13,183,041	663,688

*Baltimore & Ohio Railroad Co., Boston & Maine Railroad, Chesapeake & Ohio Railway Co., Chicago & Alton Railroad Co., Chicago & Eastern Illinois Railroad Co., Chicago, Milwaukee & St. Paul Railway Co., Chicago & Northwestern Railway Co., Chicago, Rock Island & Pacific Railway Co., Great Northern Railway Co., Illinois Central Railroad Co., Lehigh Valley Railroad Co., Missouri-Kansas-Texas Railroad Co., Missouri Pacific Railroad Co., New York Central

Railroad Co.
St. Louis Sc
road Corpor
†During

trust certificates, and notes during the same period are 3.51%, 1.61%, and 1.73%, respectively.

The apparently wide variation from year to year in the total par value of securities upon which the cost of obtaining money was based is not necessarily attributable to the fact that the capital flotations in one year were smaller or larger than in the immediately

preceding or succeeding years; the relatively smaller amount in par value of securities appearing in any one year may mean simply that information concerning the cost of money was available only for a smaller aggregate amount. While the column headed "Percentage Cost of Money" displays variations in the annual average cost, in view of the fact that in each yearly period the

NEY TO STEAM RAILROADS, 1900-1930*

Bankers' Commission D (Dollars)	NOTES				PERCENTAGE ^(D) COST OF MONEY _(B)				NOTES	
	Par Value A (Dollars)	Price Received by Company from Bankers B (Dollars)	Bankers' Sale Price C (Dollars)	Bankers' Commission D (Dollars)	BONDS		EQ. TRUST CERT.		Weighted Average	Simple Average
					Weighted Average	Simple Average	Weighted Average	Simple Average		
					3.62	3.35				
					4.41	4.80				
					4.50	5.76				
83,190					5.60	5.62	3.00	3.00		
40,270	1,000,000	950,000	965,000	15,000	4.23	3.66	.38	.38	1.58	1.58
123,460	1,000,000	950,000	965,000	15,000	4.30	4.42	.93	1.69	1.58	1.58
13,200	7,000,000	6,751,500	6,912,500	161,000	4.23	3.92	.67	.67	2.38	2.38
199,698	50,000,000	49,253,000	49,625,000	372,000	2.83	2.83	1.58	1.51	.76	.76
173,449	110,050,000	107,963,249	109,417,500	1,454,251	4.18	4.20	2.50	3.04	1.35	1.63
2,69,093	21,000,000	20,403,750	20,820,000	416,250	3.25	3.98	3.63	3.82	2.04	2.00
10,720					2.33	3.17	.68	.68		
666,160	188,050,000	184,371,499	186,775,000	2,403,501	3.28	3.69	2.87	2.34	1.30	1.73
204,000	28,220,000	27,473,200	27,862,500	389,300	4.32	5.09	1.14	1.15	1.42	2.93
339,013	60,750,000	59,466,250	60,291,325	825,275	3.36	3.51	1.72	1.93	1.39	1.24
374,905	65,100,000	64,543,625	64,878,125	334,500	4.43	5.51	1.84	2.25	.52	1.61
541,498	100,721,910	98,564,587	99,375,528	810,941	3.38	3.97	.98	1.38	.82	.94
490,902	105,846,957	103,045,345	103,904,227	858,882	2.71	2.71	.97	1.13	.83	.90
7,700,340	360,638,867	353,093,007	356,311,905	3,218,898	3.51	3.95	1.23	1.55	.91	1.44
50,848	67,000,000	65,542,500	66,397,500	855,000	2.91	2.81	1.95	2.39	1.30	1.27
331,999	5,000,000	4,750,000	4,987,500	237,500	2.68	2.60	1.90	2.05	5.00	5.00
7,712,067	10,000,000	9,488,643	9,912,500	423,857	4.14	3.45	4.12	4.05	4.47	4.42
389,459	2,000,000	1,875,812	1,928,800	52,988	4.89	3.98	2.42	2.09	2.82	2.82
136,887					3.84	3.81	2.17	2.17		
980,749	7,000,000	6,825,000	6,930,000	105,000	2.86	2.91	2.19	2.18	1.54	1.54
979,459	17,000,000	16,575,000	16,860,000	285,000	3.16	2.96	2.15	2.13	1.72	1.67
581,781					3.03	2.91	1.99	1.93		
7,780,402	36,000,000	34,764,455	35,631,300	866,845	3.94	3.31	2.46	2.38	2.49	2.75
914,048	6,000,000	5,899,200	5,959,200	60,000	2.88	2.80	1.53	1.48	1.02	1.02
281,916					2.68	2.38	.64	.61		
73,976					2.61	2.57	.60	.64		
796,779					2.70	2.70	.93	.94		
461,148					2.59	2.50	.66	.62		
5,529,862	6,000,000	5,899,200	5,959,200	60,000	2.65	2.53	.93	.86	1.02	1.02
4,489,960	549,688,867	538,414,506	544,051,905	5,637,399	3.54	3.94	1.67	1.77	1.05	1.55
3,666,500	548,688,867	537,464,506	543,086,905	5,622,399	3.38	3.83	1.72	1.78	1.05	1.55
3,393,421	474,638,867	464,049,162	469,287,405	5,238,243	3.25	3.32	1.62	1.54	1.13	1.73
183,041	663,688,867	649,370,661	657,027,405	7,656,744	3.33	3.51	1.70	1.61	1.18	1.73

ern Illinois
Northern
Central
Railroad Co., New York, New Haven & Hartford Railroad Co., Northern Pacific Railway Co., Pennsylvania Railroad Co., St. Louis-San Francisco Railway Co.,
St. Louis Southwestern Railway Co., Southern Pacific Co., Union Pacific Railroad Co., The Virginian Railway Co., Wabash Railway Co., Western Pacific Rail-
road Corporation and their predecessor, subsidiary and affiliated companies.

†During the war period the railroads were controlled and operated by the Federal Government.

average cost figures are based upon a great variety of securities and represent issues of railroads of varying earning power and operating characteristics, and in view of the fact, also, that at the time of issuance of the individual blocks of securities different conditions prevailed in the money and investment markets, only the most general conclusions can be drawn from the table. As might be expected, the weighted and simple average cost of obtaining money through the sale of bonds is higher than that incurred through the sale of equipment trust certificates or notes. A glance at Table I clearly indicates no seasonal, secular, or cyclical movement in the cost of obtaining money. On the contrary, the figures substantiate the fact that continual fluctuations in the supply of or demand for funds in the investment market, as well as other factors heretofore detailed, are the primary determinants of what railroads will have to pay to get money.

It would be improper to consider only the average costs of a certain year in view of the many factors previously enumerated which might make the cost of money in that year unrepresentative. To offset the yearly range of variation, 5-, 10-, 15-, and 28-year averages were struck for each type of security issued. Attention is directed to the relatively narrow range of variation in these averages. Table II presents these averages for various periods.

After a review of the foregoing facts it is appropriate to direct attention to the fact that all the preceding data relate to the expenditures for this item which a going railroad actually had to make. To one familiar with the nature of the investment market and the circumstances surrounding the sale of securities by investment bankers to the investor, it is evident that all the pre-

ceding factual data showing the cost of obtaining money to railroads understate the cost which would be incurred in raising money by a railroad reproduced under the Commission's theory of valuation. For the preceding data show what the cost of obtaining money was to existing railroads with established earning power that could be cited by the investment banker to the investor when the block of securities in question was being offered for sale. On the other

TABLE II. AVERAGE COST OF MONEY TO RAILROADS

	Bonds	Equipment Trust Certificates
Weighted average		
Range, 5-year periods...	2.65-4.30%	.93-2.87%
Mean, 5-year periods...	3.48%	1.90%
Simple average		
Range, 5-year periods...	2.53%-4.42%	.86-2.38%
Mean, 5-year periods...	3.48%	1.62%
Weighted average, 1900-14	3.54%	*
Simple average, 1900-14..	3.94%	*
Weighted average, 1900-30	3.33%	1.70%
Simple average, 1900-30..	3.51%	1.61%

*Period 1900-14 omitted because of insufficient data for period 1900-04.

hand, a brand new railroad, being reproduced under the theory of the Commission, would have its securities adversely criticized by the investor on the ground that it had not yet demonstrated one dollar of earnings as a guarantee of its ability to meet the interest on its funded obligations or to pay dividends on its stock.

In these circumstances, the amount of sales and advertising effort, administrative work, and money expended by the investment banker completely and successfully to market the securities of the railroad to the investing public would be substantially increased. Confronted with the choice of marketing securities of a seasoned railroad as compared with the securities of a railroad in embryo, investment bankers are positive in their expression of preference for the former type of securities, in-

asmuch as senior securities of seasoned railroads are generally acceptable investments to savings banks and insurance companies, whereas securities of untried railroads are not. The availability of savings banks' and insurance companies' investment funds and the size of the blocks of securities purchased therewith enable the investment banker to effect material savings in his operating expenses and overhead. Marketing securities of an unseasoned railroad cannot be carried on with the same facility, for such securities are seldom, if ever, acceptable as investments to savings banks and insurance companies, and moreover require enormous sales efforts to make them attractive to the individual investor. As a consequence, the cost of obtaining money to the brand new railroad would be in excess of the figures heretofore adduced.

Moreover, it should be kept in mind that in the figures showing the cost of obtaining money presented in Table I, numerous refunding issues were included in the calculation; in brief, only a small fraction of the total amounts involved represents the sale of securities for the purpose of raising the initial funds with which to construct a railroad property. The presence in the calculation of the cost of obtaining money of these refunding issues, representing as they do issues of railroads with an established operating record, undoubtedly tends to reduce the weighted average cost below that which would be arrived at had all the securities been issued for the purpose of raising funds to construct a new railroad.

*Cost of Money as an Element in the
Valuation of a Railroad*

There never has been any question of the right of a railroad to be reim-

bursed for the cost incurred in obtaining capital funds devoted to the development and expansion of its transportation facilities and service. After the ascertainment of the exact cost of raising the funds used by the railroad in its business, the problem then arises as to the method by which the management of the railroad may deal equitably with the investors, who through the purchase of securities have contributed the funds necessary to construct and develop the railroad property, and with the consumers of the railroad who are using and paying for its transportation service.

The decisions of the courts and commissions show two distinct ways in which this cost of money may be handled. On the one hand, the expenditures incident to raising money may be regarded as constituting an unavoidable expense in the acquisition of capital funds necessary to initiate and develop the business and as such properly to be considered in the same class as the cost of professional services rendered by engineers, attorneys, and the administrative organization of the company in connection with the construction and development of the property; in brief, a cost upon which a reasonable amount for interest and profit should be earned. Thus to add the expenditures incurred in getting capital funds to the total investment in the plant, and hence to consider it as an integral part of the total sum upon which a fair rate of return should be allowed, is one way in which an equitable arrangement may be effected as between the investors and the customers of the railroad. The addition of the cost of money to the physical property investment of the railroad enlarges the sum of money representing the value of the plant upon which a fair return is to be allowed.

The second method of treating the cost of money is gradually to write off the original cost by charging a sufficiently high rate to the customers immediately following the acquisition of the capital funds invested in the business so that over the period of years for which the securities run, the entire cost will be written off through operating expenses. For example, a cost of \$1,000,000 incurred in the sale of a \$20,000,000 bond issue, running for 20 years, may be extinguished for a railroad having 50,000 users by equal payments during the life of the bonds of \$1 per customer a year, or by an increase of \$50,000 per annum in the ordinary rates over and above the rates necessary to cover operating expenses, including depreciation and reasonable amounts for interest and profits. When amortized in this manner, the cost of obtaining money becomes only a temporary charge against the customers, but is shifted from all users of the railroad, present and potential, to only that part of them attached during the period for which the securities run. The total cost of obtaining money is thus extinguished at the expense of those people who use the transportation facilities in question during the amortization period.

Arguments for Capitalizing Cost of Money

There are sound economic reasons for capitalizing the cost of money. From the customer's point of view there is something to be said in favor of the method by which the amount expended in acquiring funds is added to the value of the plant upon which a fair return is to be allowed. Even though by such a method the cost of money becomes a permanent charge upon the customer, this charge will be relatively low compared with that which the customers of the first few years following the in-

auguration of the enterprise will have to bear in case the cost is written off through operating expenses. Moreover, the amortization method of handling the cost of money accentuates the financial burden which the customers of the railroad during the earlier years have to bear, not alone because during this period the customers are fewer in number, but also because it is likely that necessary changes in plant, personnel, and services dictated by cumulative experience with the community served, render inevitable higher rates during the inaugural stages of the enterprise.

From the standpoint of the stockholder cogent reasons exist for including the cost of money to a railroad in the investment upon which a fair rate of return is to be calculated. For it must be remembered that the value of most railroads is represented both by bonds and by stocks. The bonds have prior claim on the earnings while the stockholders take what is left after all preferred claims have been met. The amount deducted from the so-called fair value of the property in case the cost of money is written off through operating expenses would, therefore, have to come out of the stockholder's share alone instead of being distributed over the entire value of the property as it should be.

Effect on Stockholder if Cost of Money is not Capitalized

For the purpose of illustrating the effect which the failure to capitalize the cost of obtaining money to a railroad would have upon the equity of a common stockholder thereof, the calculation appearing in Table III was made. The relationship existing between the money raised by bonds, by equipment trust certificates, and by stock is pred-

icated upon the capital structures of Class I railroads, which show that money raised by the sale of bonds, equipment trust certificates, and preferred stock amount approximately to 68% of the total par value of securities outstanding, while the remaining 32% represents the equity money, or common stock.

It is assumed for the purposes of this illustration that a railroad enterprise is to be organized with a total investment of \$10,000,000 over and above the cost of obtaining that capital, the money to be raised by the sale of bonds, equipment trust certificates, and stock according to the proportions just described. With the exception of the stock, the cost of obtaining money figures represent the actual costs of obtaining money on bonds and equipment trust certificates to railroads in the United States as set forth in Table I. The percentage costs of obtaining money through the sale of preferred and common stock respectively, used in Table III, are predicated upon figures gleaned from bankers and err on the side of conservatism; for frequently the charges exacted by bankers for the flotation of *additional* stock of the larger Class I railroads which have been operating success-

fully for half a century or more, will amount to the figures used in Table III, as representing the cost of obtaining money to a brand new railroad.

To simplify the illustration, it is assumed in all cases that the securities without exception will be sold to the ultimate investor at par so that the investor's money contribution to the physical plant of the railroad will in fact exactly equal the par value of the securities outstanding in every case.

With the foregoing factors affecting this calculation in mind, the amount of bonds which would have to be issued to the investors at par to yield \$5,000,000 in cash would be determined by the cost of obtaining money applied in this instance, or 4.4%. In brief, the total par value of the securities that would have to be sold to net the company \$5,000,000 subsequently to be invested in its plant would exceed \$5,000,000 by the total expenditures made in obtaining the money. This amounts to \$220,000 so that the railroad would have to sell \$5,220,000 of bonds in order to receive net \$5,000,000. With equipment trust certificates exactly the same method of calculation is applied and the result in this case shows that \$813,600 of equipment trust certificates would have

TABLE III. EFFECT ON STOCKHOLDERS' INVESTMENT IF COST OF OBTAINING MONEY IS EXCLUDED FROM FAIR VALUE OF RAILROAD WITH TOTAL INVESTMENT OF \$10,000,000

	Bonds	Equipment Trust Certificates	Stock		Total Par Value of Common Stock Sold to Investor	Equity for Common Stock Assuming No Allowance is Made for Cost of Obtaining Money in Valuation	Percentage of Par Value of Common Stock Represented by Allowed Value	Percentage of Par Value of Common Stock Not Represented by Allowed Value
			Pre- ferred	Common				
EXAMPLE A								
Assuming investment to be represented by.....	50%	8%	10%	32%	\$3,584,000	\$2,886,400	80	20
Cost of obtaining money based on 1900-1904 average.	4.4%	1.7%	10%*	12%*				

*It is believed that the allowances of 10 and 12% for the cost of money through the sale of preferred and common stock, respectively, are not excessive, especially in view of the fact that in a decision of a public service commission an allowance of \$10 a share to a banking house for selling a 7% preferred stock at par was held to be reasonable. (Re Utilities Power Co., P. U. R. 1923 A 338.)

to be sold to the investor at par in order to net the company \$800,000. The amount of preferred stock that would have to be issued with a cost of obtaining money at 8% to net the company \$1,000,000 would be \$1,080,000. By the same process the amount of common stock that would have to be issued at a cost of 12% to net the company \$3,200,000 would be \$3,584,000. Consequently, \$10,697,600 of securities will have to be issued at par to the ultimate investor to yield to the company \$10,000,000 to invest in its property after the cost of obtaining money has been defrayed.

The relationship between the cost of obtaining money expressed in dollars and the equity which the common stockholders now possess in the \$10,000,000 property is as follows: The total cash received by the company from the bankers is \$10,000,000 and the total par value of the bonds, equipment trust certificates, and preferred stock outstanding, representing dollar for dollar the money contributed by the ultimate investor, is \$7,113,600. The balance, representing the equity for the common stock, assuming that no allowance is made for the cost of obtaining money in any valuation of the railroad property immediately following the construction of the property, amounts to \$2,886,400. While the common stockholder has paid \$3,584,000 in cash for this stock, yet if the cost of obtaining this money is excluded from the total value of the railroad's property, then the equity in the property, representing the allowed part of the rate-base belonging to the stockholder, would amount to \$697,600 less than the actual amount of money which he has contributed to the enterprise. In brief, if the cost of obtaining money is not regarded as an element of value in the railroad's property, approxi-

mately 20% of the common stock equity has immediately disappeared.

The preceding calculation definitely demonstrates that the cost of obtaining money is something which the security holders have generally contributed to the enterprise. The need for recognizing the cost of obtaining money as an essential part of the value of any railroad or utility is further accentuated by the fact that both types of enterprises are continually seeking to attract capital with which to finance the improvements and extensions demanded by their customers. Should stockholders find that through the arbitrary refusal of the commissions to recognize legitimate expenditures incurred in obtaining money as a part of the money invested in the property, approximately 20% of their investment disappears immediately after the purchase of their stock, then the keystone of the financial structure—the investment in common stock—becomes practically impossible. No investor is likely to invest in a business enterprise where his profits are not only regulated, but where at the outset he must face a loss of 20% of his investment because the regulatory bodies have decided that the cost of obtaining money must be amortized through operating expenses rather than be added to property investment.

The soundness of the reasoning by which some courts and commissions justify the amortization of the cost of money out of operating expenses and refuse to permit it to be included in the investment in the property diminishes when it is realized that one of the standard measures adopted by commissions for determining a fair rate of return sufficient to attract capital into the industry is the cost of obtaining money in the open market. In the mechanics of fixing rates for railroad enterprises, the value of the prop-

erty is generally regarded as constituting the base upon which the rates are to be fixed—this value representing a finding by some government tribunal that there has been and is, as of the date of the valuation, a certain amount of money invested in the property that is used and useful and dedicated to the public service. A fair rate of return is the interest rate which when applied to the money invested in the property produces the return which, in the judgment of the regulatory body and the owners of the property, including its creditors or bondholders, it should be allowed to earn. The rate of return measures the sum which the railroad is allowed to collect from the public for the service rendered. The purpose of determining the fair value of a railroad is to give to the security holder and particularly to the owners of the property, namely preferred and common stockholders, some estimate of the actual money investment behind their security. As a matter of fact, the reputable investment banker is extremely careful before he sells any railroad bonds or stock to his customers to ascertain whether there is a dollar-for-dollar investment value behind the securities marketed, for he realizes the precariousness of his position, if he is detected selling securities which will not at all times be recognized as having a right to a return. It is sheer casuistry to say that the amortization of the cost of money without capitalization thereof adequately protects the investment of the bondholder and stockholder. Unfortunately, under our capitalistic regime the investor or owner measures the adequacy of his protection by whether or not he has returned to him at the maturity of his investment the same dollars of purchasing power that he has originally contributed to the enterprise.

Blandly to assure him at the outset that having paid so much money for his bonds or stock his investment will shrink 20%, as a result of the failure of commissions or courts to recognize the legitimacy of including the cost of obtaining money in the total investment, is a method par excellence for keeping capital out of the railroad industry.

It should not be assumed that the capitalization of the cost of money would automatically result in repeated additions to the capital structure of the railroad or public utility whenever new or refunding issues of bonds or stock were floated. Clearly, such a practice would result in arbitrary increases in the capitalization of the railroad without any substantial increase, perhaps, in its physical property. Indeed, it is conceivable that a railroad without any well-developed financial program might enjoy continual accretions to its capital structure through additional brokerage charges incurred on new security issues, and thus directly benefit from a haphazard financial policy. The cost of money or brokerage should be added to the capital structure of a railroad or public utility only once. Whether the brokerage fee which is applied to the total capital structure as a means of determining the absolute amount in dollars which should be added thereto for the cost of money, is the fee incurred on the flotation of the initial securities or whether the brokerage fee is an average of the various costs incurred in floating a series of security issues over a period of time, makes little difference. In any event, it is contemplated that the cost of money will be added only once to the total capital structure of the railroad or public utility.

It is submitted that the question of whether the cost of obtaining money is being amortized by the company is

immaterial in determining whether the cost of money should be included as an item in the fair value of the property. If the principle is adhered to that anything which is amortized should be excluded from the valuation, the entire theory upon which valuations are universally made would be so greatly impaired as to cause their abandonment as a means of determining the fair value of the property of a railroad. It is universally admitted that interest during construction is an element of the cost of the property and should be included as a part of its fair value. It is also universally admitted that engineering is a proper element in the cost of constructing a property and should be included as a part of its value. But both interest during construction and engineering—together with other elements of cost of a similar nature—are amortized over the life of the various elements of physical property, in which these items represent a part of the cost, through a reserve for renewals and replacements, sometimes referred to as a reserve for depreciation. The capital which is raised for the purchase of labor and materials, for providing engineering and meeting interest during construction, all passes out of existence with the physical property. In exactly the same way the corporate organization of most enterprises ceases at some time to be suitable for the conditions then existing. The railroad outgrows its financial structure and extensive refinancing is therefore necessary. This is an element of obsolescence exactly

similar in nature to the obsolescence of physical property and must be so regarded and handled.

It requires no minute scrutiny to ascertain the fact that the amount of money expended by a railroad in obtaining capital funds is nothing more than a remuneration paid to the bankers for their specialized services. The cost of money, therefore, is directly comparable to the sum paid indirectly to wholesalers, retailers, and manufacturers in the purchase of tangible property and equipment, for in every item of physical property bought by a railroad a certain amount of the total purchase price goes toward defraying the costs of sale and distribution thereof, and hence represents specific payments to the individuals or corporations performing such services. To deny the validity of including the cost of obtaining money—representing as it does a legitimate item of expenditure incurred in getting requisite funds—as a proper and indispensable element in the cost of constructing and developing every railroad property, is equivalent to a denial that the purchase price honestly paid for tangible property and equipment represents the true original value of the physical property investment. Money used for plant construction and expansion is a commodity and must be bid for in a competitive market, and the time and energy incident to its acquisition and placement in the hands of the railroad should be duly compensated.

Is Municipal Ownership at the Crossroads?

By PAUL JEROME RAVER

IN THE May issue of this *Journal*¹ the writer discussed certain changes in the trend of the establishment of municipally owned electric utilities in the United States—changes which pointed definitely to a quickened interest in municipal ownership and indicated that the downward sweep in the number of municipally owned establishments in existence had been checked and might be definitely reversed in the near future. The figures presented at that time were tentative but were sufficiently accurate to warrant the conclusions drawn. The apparently rising tide of sentiment for municipal ownership seemed to warrant a further careful check of the movement and as a result of this check a complete list of municipally owned generating plants was published in the August issue of the *Journal*, followed in the November issue by a complete list of the establishments purchasing all current distributed.² Since the response to the publication of these lists was immediate and extensive, it has seemed worth while to correct certain basic tables, published in earlier years, by incorporating the minor changes found in the above check.

The growth and changing technical

¹ Raver, Paul Jerome, "Municipal Ownership in the Last Five Years", 9 *Journal of Land & Public Utility Economics* 121-134 (May, 1933).

² 9 *Journal of Land & Public Utility Economics* 306-313 and 410-417 (August and November, 1933). Both lists were checked against similar data independently compiled by Edna C. Macmahon of Columbia University.

³ This table, 1882 to 1927 inclusive, was first published by Herbert B. Dorau, *The Changing Character and Extent of Municipal Ownership in the Electric Light and Power Industry*, p. 52 and later for the period 1882 to 1930 inclusive by the writer, *Recent Technological Developments and the Municipally Owned Power Plant*, p. 3.

character of municipal establishments in existence during the 51 years from 1882 to the close of 1932 are shown in Table I³ and Chart I (corrected by the new information).⁴ The new data do not alter the trends discussed in previous studies.⁵

The purpose of this article, however, is to consider more specifically and in some detail the changes in the two years 1931 and 1932 and to evaluate, if possible, some of the broader implications of current developments. The total number of establishments in these two years has continued to decline but at a decreasing rate. The drop from 1929 to 1930 was 99 establishments, or 4.9%; from 1930 to 1931 the drop was only 2.7%, represented by 53 establishments; while 1932 registered a decline of only 0.7% (13 establishments) from 1931.

Table II, which analyzes generating plants only, shows a distinct reversal of the downward trend in 1932 for plants of this character. The number of generating plants (which include those generating all or part of output) increased from 902 in 1931 to 905 in 1932. Of course, the significant fact to be noted in Table II is the continued rise in total horsepower capacity and average size of generating plants (based on

⁴ The total number of municipal establishments shown here (1,849) does not correspond with the preliminary report of the United States *Census of Electrical Industries* for 1932 (taken in 1933) which lists the total at 1802. A part of this discrepancy is accounted for by the inclusion of 31 plants generating current for street lighting only which are not included in the *Census* classification. In addition, the tabulation given here includes a few plants owned by municipalities but leased to private companies. When these reconciliations are made, the totals given by the two sources agree within about $\frac{1}{2}$ of 1%.

⁵ Raver, *op. cit.*, *supra* notes 1 and 3.

data from preliminary reports of the 1932 *Census of Electrical Industries*).

In Table III the frequency distribution of plants in existence in each year by horsepower groups shows in more detail the trend toward larger sized plants. The number of plants over 500 horsepower in size experienced an uninterrupted increase from 60 in 1903 to 536 in 1930 (Table III and Chart II), forming what has been referred to in a previous monograph⁶ as the "subsistence level" or plateau of normal growth of municipally owned generating plants. While data for 1931 and 1932 give results which are inconclusive because the horsepower is partially estimated, a continuation of the upward trend of the

number of plants over 500 horsepower may be expected in 1934 as a result of the aid to municipal ownership projects recently promised by the Public Works Administration.⁷ Actual construction of plants in 1933 was held back in many cases awaiting decision of the Government as to its policy in aiding in the financing of such projects.⁸ This stored up demand may reasonably be expected to be released in 1934. It may be that this aid from the Federal Government will encourage towns below the 500-horsepower level to establish plants.

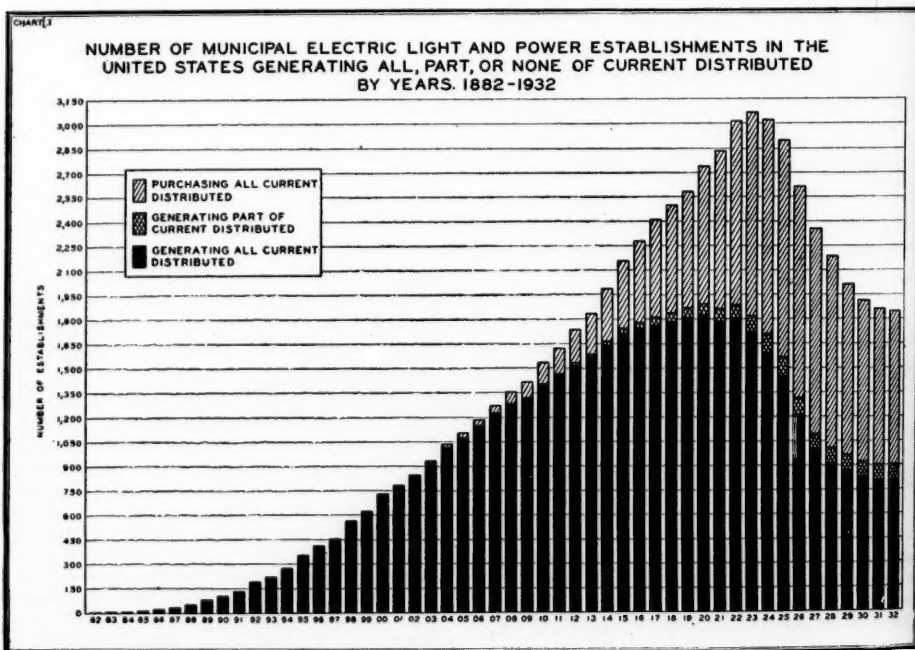
Considerable interest, therefore, attaches to the trend in technical char-

to 25% of the total cost of new projects.

⁶ Raver, *Recent Technological Developments and the Municipally Owned Power Plant*, p. 70.

⁷ Provision has been made for a federal grant (which is not required to be repaid) of 30% of the cost of labor and materials used in plant construction. (This also applies to plants other than electric light and power.) This will actually amount to about 20

⁸ Nevertheless, several rather large projects were completed and placed in operation in 1933, notably Vernon, California, with a Diesel plant of 35,000 horsepower and Piqua, Ohio with a steam plant of 8,000 kws. Of the smaller plants, Geneseo, Illinois (starting in July, 1933) may be cited as a recent example of small isolated plant competition with a privately owned system.



IS MUNICIPAL OWNERSHIP AT THE CROSSROADS?

63

TABLE I. NUMBER OF MUNICIPAL ESTABLISHMENTS IN THE UNITED STATES GENERATING ALL, PART, OR NONE OF OUTPUT, BY YEARS, 1882-1932

Year	Generating			
	Total	All	Part	None
1882	4	4		
1883	8	8		
1884	10	10		
1885	16	16		
1886	25	25		
1887	36	36		
1888	52	52		
1889	82	82		
1890	107	107		
1891	138	138		
1892	190	187		3
1893	221	217		4
1894	276	271		5
1895	355	348		7
1896	413	405		8
1897	459	449		10
1898	567	556		11
1899	623	611		12
1900	728	714	1	13
1901	783	768	1	14
1902	847	831	1	15
1903	932	911	1	20
1904	1,038	1,010	1	27
1905	1,103	1,067	1	35
1906	1,177	1,133	2	42
1907	1,267	1,215	1	51
1908	1,351	1,272	2	77
1909	1,414	1,309	6	99
1910	1,534	1,390	7	137
1911	1,622	1,440	12	170
1912	1,731	1,505	16	210
1913	1,831	1,558	22	251
1914	1,980	1,628	28	324
1915	2,150	1,699	34	417
1916	2,272	1,729	37	506
1917	2,401	1,746	50	605
1918	2,499	1,776	55	668
1919	2,582	1,792	66	724
1920	2,742	1,813	68	861
1921	2,844	1,781	77	986
1922	3,025	1,788	86	1,151
1923	3,077	1,705	102	1,270
1924	3,040	1,584	114	1,342
1925	2,915	1,437	115	1,363
1926	2,646	1,201	115	1,330
1927	2,358	992	103	1,263
1928	2,180	909	100	1,171
1929	2,014	864	98	1,052
1930	1,915	828	96	991
1931	1,862	807	95	960
1932	1,849	809	96	944

acter of municipal establishments. That is, will municipal ownership develop during the next few years along lines of isolated plant generation of electricity or will it embrace only the distribution of power purchased at wholesale from mass-production sources, either publicly or privately owned? Certainly, where

municipalities have satisfactory sources of cheap power available, the establishment of isolated generating plants is out of step with a policy of utilizing existing mass-production economies. The same reasoning should apply regardless of whether that source of power is publicly or privately owned. Yet, there are indications that the reasoning differs under different circumstances of ownership of the power supply.

For example, Table I shows that between 1923 (the year in which the number of municipal establishments reached its peak of 3,077) and 1928, the number of plants generating all or part of output declined 45%, whereas the cor-

TABLE II. NUMBER, HORSEPOWER CAPACITY, AND AVERAGE SIZE OF MUNICIPAL GENERATING PLANTS IN EXISTENCE IN THE UNITED STATES BY YEARS, 1903-1932

Years	Number of Plants*	Horsepower of Plants	Average Size of Plants (H. P.)
1903	912	210,821	231
1904	1,011	241,250	239
1905	1,068	271,439	254
1906	1,135	297,100	262
1907	1,216	349,942	288
1908	1,274	365,992	287
1909	1,315	419,409	319
1910	1,397	450,875	323
1911	1,452	483,388	333
1912	1,521	527,251	347
1913	1,580	604,642	383
1914	1,656	697,539	421
1915	1,733	745,628	430
1916	1,766	789,681	448
1917	1,796	812,956	453
1918	1,831	880,871	482
1919	1,858	955,032	514
1920	1,881	1,093,998	582
1921	1,858	1,097,303	591
1922	1,874	1,204,170	643
1923	1,807	1,318,506	730
1924	1,698	1,402,408	826
1925	1,552	1,596,381	1,029
1926	1,316	1,757,361	1,335
1927	1,095	1,858,896	1,698
1928	1,009	2,046,265	2,028
1929	962	2,270,947	2,361
1930	924	2,586,605	2,799
1931	902	↑	↑
1932	905	↑	↑

* Includes plants generating all or part of output.
 † Complete data on horsepower for these years are not available. The recent Census of Electrical Industries (preliminary) gives a total of 2,775,649 horsepower for 1932. The Census figures indicate an average size of 3,200 horsepower for this year. Using this as a basis, the interpolated figure for 1931 would be 3,000 horsepower.

responding drop in the number of purchasing establishments was less than 8%. The figures in Table I indicate and it is common knowledge that privately owned mass-production generating facilities were being utilized as a source of energy supply rather extensively during this period by municipally owned establishments. That is, the trend was predominantly toward the purchasing type of establishment. However, from the close of 1928 to the close of 1930 the corresponding percentages were 8% and 15% respectively. While there are many factors to be taken into consideration in drawing conclusions, the reversal of the trend shown here is sufficiently striking to indicate a more

favorable attitude in the past few years toward the use of the isolated generating plant by municipalities even though large-scale production facilities were in existence from which power could have been purchased.

Analysis of the figures underlying Table I for the years 1931 and 1932, however, reveals a trend so slight as to be inconclusive on this point. For plants in existence at the beginning and close of the two-year period the figures are:

Number changing from P to G*.....	17
Number changing from P to G P.....	1
Number changing from G P to G.....	17
Total number moving in the direction of independence from outside sources of power.....	35

TABLE III. FREQUENCY DISTRIBUTION OF THE TOTAL NUMBER OF MUNICIPAL GENERATING PLANTS IN EXISTENCE IN THE UNITED STATES BY HORSEPOWER GROUPS AND BY YEARS, 1903-1932

Year	All Groups	100 H. P. and Under	101-200 H. P.	201-300 H. P.	301-500 H. P.	501-1,000 H. P.	1,001-2,000 H. P.	2,001-5,000 H. P.	5,001-10,000 H. P.	10,001-25,000 H. P.	25,001-50,000 H. P.	Over 50,000 H. P.	Total Number over 500 H. P.
1903	912	277	339	140	96	47	8	4	1	.....	.....	.....	60
1904	1,011	303	370	151	114	56	11	5	1	.....	.....	.....	73
1905	1,068	309	374	171	134	59	14	6	1	.....	.....	.....	80
1906	1,135	313	396	180	152	71	16	6	1	.....	.....	.....	94
1907	1,216	338	412	191	168	80	17	5	4	1	.....	.....	107
1908	1,274	358	433	199	170	83	19	7	4	1	.....	.....	114
1909	1,315	370	421	221	172	91	24	11	3	1	1	.....	131
1910	1,397	417	416	235	180	106	25	12	4	1	1	.....	149
1911	1,452	439	420	240	185	119	27	16	4	1	1	.....	168
1912	1,521	466	410	249	211	130	30	19	4	1	1	.....	185
1913	1,580	488	406	261	215	146	35	21	5	.....	3	.....	210
1914	1,656	537	404	270	217	152	43	22	6	1	4	.....	228
1915	1,733	582	395	286	227	160	47	24	5	3	4	.....	243
1916	1,766	608	398	275	229	163	52	26	8	3	4	.....	256
1917	1,796	631	395	268	231	171	55	31	6	4	4	.....	271
1918	1,831	658	391	257	239	178	63	29	8	3	5	.....	286
1919	1,858	666	386	261	233	193	64	37	8	4	6	.....	312
1920	1,881	664	386	267	231	198	75	42	7	5	3	3	333
1921	1,858	661	373	261	226	201	76	41	8	5	3	3	337
1922	1,874	633	366	260	237	212	90	51	11	8	3	3	378
1923	1,807	569	352	252	226	232	85	62	13	10	4	2	408
1924	1,698	501	317	229	225	236	92	65	17	9	5	2	426
1925	1,552	412	285	201	216	226	104	69	19	12	4	4	438
1926	1,316	282	217	172	193	217	113	78	23	11	3	7	452
1927	1,095	171	166	127	173	201	121	85	26	15	3	7	458
1928	1,009	120	131	108	157	209	139	88	31	15	3	8	493
1929	962	94	107	91	160	200	142	102	34	21	3	8	510
1930	924	73	89	80	146	205	146	105	43	24	5	8	536
1931*	902	67	80	77	146	202	142	108	43	24	5	8	532
1932*	905	65	78	80	146	205	141	110	43	24	5	8	536

*Distribution in 1931 and 1932 estimated on basis of partial information available. The method of estimate was conservative, tending to yield lower figures than would be indicated by the total horsepower listed in the 1932 Census of Electrical Industries.

Number changing from G to P.....	11
Number changing from G to G P.....	19
Number changing from G P to P.....	4
Total number moving in the direction of dependence on outside sources of power.....	34

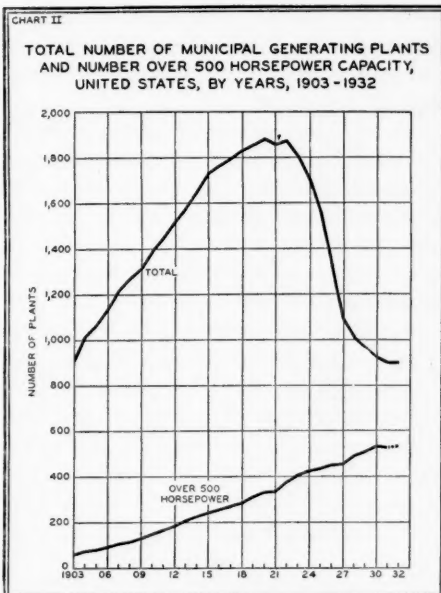
* "P" refers to establishments purchasing all the current they distribute; "G" to plants generating all their output; and "G P" to those which generate part and purchase part of output.

The character of these changes in each instance depends, of course, upon local conditions, an important consideration being availability of satisfactory sources of supply at rates sufficiently attractive to discourage isolated plant generation.

While the changes revealed here offer no indication of the trend of sentiment regarding isolated plant generation for the last two years, two recent developments of national significance will doubtless have a bearing on the future trend. One of these is the proffered aid of the Public Works Administration already mentioned. This will tend to encourage still further the installation of municipally owned generating equipment and seems likely to result, in some instances, in duplication of investment where other outside sources of power are already available, and may also result in the establishment of some plants below the 500-horsepower "subsistence level." The second is the Tennessee Valley experiment and other similar federal and state projects (public power districts, for example) now in process of development. These, in general, are of a nature tending to discourage installation of isolated generating plants within the areas which they embrace. For example, in the Muscle Shoals territory the present trend is away from the isolated plant form of production. It is reported⁹ that a dozen small cities in Alabama had approved propositions for

⁹ In a forthcoming article by H. M. Olmsted on Municipal Ownership in the *American Yearbook*, published by the New York Times Publishing Co.

the construction or acquisition of municipal electric distributing systems up to the early part of November, 1933. Here is tangible evidence that a resumption of the growth in number of municipal establishments purchasing all of output, noted in the period prior to 1925 when private capital provided the massed-production facilities, may occur in the future—at least in those sections where public capital provides the large-scale generating facilities. Perhaps of



Data on horsepower were estimated for the years 1931 and 1932.

even greater significance, these publicly owned production plants may reverse the prevailing procedure of the past and buy out privately owned generating and distribution systems to provide outlets for surplus power.¹⁰ In the last analysis all this comes back to an earlier comment in this article to the effect that,

¹⁰ It is reported in the press that the Tennessee Valley Authority has recently contracted with private companies in Alabama, Tennessee, and Mississippi to buy certain existing generating and distributing systems.

where satisfactory sources of supply of cheap power (either privately or municipally owned) are available, the establishment of isolated generating plants—either privately or municipally owned—is out of step with a policy of utilizing fully the advantages of the existing large-scale production facilities.

Thus, isolated generating plants which have been typical of municipal ownership history now find themselves, in certain areas, under pressure from an upper and a nether millstone—privately owned systems on the one hand and publicly owned systems on the other—both offering an outside source of energy supply. As the pressure from either or both of these forces increases (assuming, of course, that the mass production machine of each is developed along sound economic lines), the economic justification of the isolated generating plant dwindles.

Of course, we must not lose sight of certain competitive factors tending to modify this statement. For example, improvements in efficiency of generating equipment, both Diesel and steam, and competition among manufacturers of such equipment tend to lower the costs of isolated plant generation and increase the competitive position of such plants. However, offsetting these elements, to some extent at least, is the fact that many private utilities, having a transmission investment already made for resale customers and having surplus capacity to sell, will reduce resale rates to the competitive level just as they have done in many cases to prevent industrial customers from installing isolated plants. Companies will be reluctant to take such action, however, since it will usually result in demands for similar rate concessions in other municipalities connected to the company

lines, particularly if the "uniform rate area" system of pricing is in effect. These conflicting competitive factors may balance each other and account for the lack of definite trends either away from or toward the isolated plant form of production during 1931 and 1932. Of course, the stagnant capital market and financial position of both the utilities and municipalities were factors in the relative standstill in these years.

However, this standstill may mark a period of transition in municipal ownership from one phase of its evolution to another. More specifically, three phases may be cited: (1) period of early development prior to 1910 when production of electricity, whether public or private, was by small units with distribution confined to limited areas; (2) period of the so-called "Second Industrial Revolution" when widespread diffusion of electricity produced en masse by private capital was made possible by the spread of transmission lines; (3) a third period in which the lines of development are not as yet clearly marked out but in which large-scale planning—state-wide, regional, and national in character—seems destined to play a significant part in securing a fuller realization of the social benefits of a wider utilization of power resources. As we enter this third period (assuming that we have), will the growing influence and activity of the Federal Government in the power business result in accomplishing the wider dissemination of power, decentralization of industry, redistribution of population, and other significant social changes which were being so freely heralded during the latter part of the second period referred to above? If so, what is to be the role of municipal ownership, particularly the municipally owned generating plant, in shaping and developing this program?

II. Apartment House Bonds: Some Plans for Reorganizing Defaulted Issues*

By CARRIE MAUDE JONES

IN the first installment of this article, which appeared in the November issue of the *Journal*, plans for reorganizing defaulted bond issues on apartment houses were grouped into five classes according to the type of instrument used in reorganization. The first two classes—namely, those which refinanced with cash payments to bondholders and those which provided for readjustments of principal and interest—were discussed in the first installment. This concluding section, therefore, will contain analyses of the three remaining groups: those which provide for the issuance of new bonds of different varieties; those which utilize stock, voting trust certificates, or participation certificates; and those which provide that title be taken by a trust which issues its own obligations.

Group III. New Types of Bonds Issued

The third type of reorganization scheme, illustrated by Plan No. 6, is quite popular and requires the issuing of new bonds of different varieties in place of the original instrument. Issues of common and preferred stock are sometimes also allotted with the bonds in various combinations.

Plan No. 6 provides for the issuance of three classes of bonds. The property consists of two buildings, an apartment hotel and its annex.¹⁸ First mortgage bonds were originally issued on each

property to the total amount of \$4,000,000 at 6½%. Both defaulted. Foreclosure proceedings were instituted and carried through, thus eliminating all non-depositing bondholders. The former equity holder was willing to cooperate in the new plan, waiving his redemption rights and receiving in return all the common stock in the new corporation.

A new building corporation was formed, including both properties. Three classes of bonds were distributed after the original first mortgage bonds were deposited with the bondholders' protective committee. Money was secured from the banks for foreclosure and reorganization expenses, as well as back taxes. Class A first mortgage 6% bonds were given to the banks to secure this loan of \$500,000 which was for a period of 15 years and which was to be amortized at the rate of \$30,000 annually. These bonds were a first lien on the property. Of the \$500,000, \$25,000 has been paid off, leaving \$475,000 outstanding at the present time.

Class B first mortgage bonds, subordinated to the Class A bonds, were given to the bondholders for 70% of the amount of their investment, and were scheduled to pay 5% the first year and 6% thereafter.

Class C second mortgage bonds were given to the bondholders for 30% of their original investment. These were scheduled for no interest the first two years and then 4% the third year, 5%

*Editorial Note: For the first part of this article see 9 *Journal of Land & Public Utility Economics* 358-367 (November, 1933). This first installment included Table I which contained various data concerning the individual properties involved in these several plans. Footnotes in this section are numbered consecutively with those in the first installment.

¹⁸ Although this building is not located in Chicago, the underwriting house had its headquarters in this city and the protective committee originated this particular plan and carried it out from their offices located here.

the fourth year, and 6% the fifth year. Class C bonds were subordinated to Class A and Class B bonds. Class B and Class C bonds will mature in 15 years by means of a sinking fund, but Class C bonds will not mature until Class B bonds have been retired. No dividends will be paid on the common stock until the Class A, Class B, and Class C bonds have been retired. The new bonds distributed have been created as equal in value to the old first mortgage bonds.¹⁹

The original bondholders' protective committee was discharged after completing this plan. Under the plan the January 1 and July 1, 1931 interest was paid in full on all the new bonds. But on January 1, 1932 default occurred in interest on the Class B bonds and no interest has been paid on these securities since that time. Income has been sufficient only to pay the operating expenses, taxes, and interest on Class A bonds.

Another interesting fact in connection with this property has been the complete cooperation on the part of the bondholders. In spite of having gone through one default and reorganization with their attendant expenses, they have been quite content to withhold action and await better times. Bonds will not be called at this time; bondholders will wait until the property can pay them interest.

Critique. Bonds, or promises to pay, are given back in this instance to bond-

holders who have deposited their original first mortgage bonds. But instead of having a first lien on the property, the Class B bonds are subordinated to the Class A bonds and the Class C bonds are really second mortgage bonds. Class A bonds have been inserted ahead of 70% of the bondholders' investment and there are two liens ahead of their Class C securities.

The plan provides for continuous interest at a fixed rate but bondholders are foregoing 1%-2% in interest. At the present time the property is just able to earn 6% interest on the Class A bonds. By placing the new loan on the property, the original bondholders have made a present of this 6% to the banks.

The plan is not suitable for a falling market as is shown by the fact that the property has not been able to earn enough to pay interest on the Class B bonds.

The owners are temporarily benefited in being responsible for less interest but will probably pay more over the period of the entire loan since the maturity date has been advanced. They have also increased their indebtedness by the amount of the new loan, but they are still in possession of the property.

Several variations of this plan, in addition to the one already mentioned, are also in use. Plan No. 8 illustrates the use of income bonds²⁰ and stocks, both preferred and common, in the reorganization scheme.²¹ This property is a

¹⁹ Plan No. 5 provides for the issuance of two new bonds: one for 15 years and the other for 30 years. The 15-year sinking fund bond bears a fixed rate of interest of 5% and is issued to the amount of 60% of the original bonds deposited. The 30-year general bond is issued to the amount of 40% of the bonds deposited and bears interest up to 6% if earnings are sufficient. One of each of these bonds is exchanged for each original bond deposited.

²⁰ The interest on an income bond is paid only when earned as determined by the board of directors, and may be cumulative or non-cumulative.

²¹ Plan 7 differs from Plan 8 in that (a) income bonds pay 1% more interest if earned; (b) the equity holder receives 60% of the stock and the bondholders the remaining 40%; (c) principal and interest on the income bonds are guaranteed by the equity holder. Plan 9 involved the use of second mortgage bonds and preferred stock to the bondholders and common stock to holders of a second mortgage. But because of legal difficulties and the fall in rentals which made it impossible for the building to earn sufficient money to pay the interest on the new securities, the proposals were abandoned. Another plan providing for the use of preferred and common stock was substituted.

three-story and basement, court type, brick apartment building, containing 24 three-room apartments and six four-room apartments. All apartments are equipped with electric refrigeration which has been installed and paid for since the trust deed was executed. The building was originally financed with a 6% bond issue of \$110,000, of which \$108,000 is still outstanding.²² There is also a second mortgage of \$11,300 and accrued interest, and a third mortgage of \$11,950 and accrued interest. The building is situated in a fairly good section of the city; the rental rates are average for buildings of this class, and the property is in good condition. It is approximately 90% rented at the present time.

Foreclosure proceedings were completed and the 1½% of bonds not deposited were eliminated. Since a warranty deed was placed in escrow by the owner and the holders of the junior mortgages participated in the plan, the long period of redemption was not necessary in this case. The title to the property is held by a building corporation made up of the depositing bondholders.

Income bonds²³ running for a 10-year period with interest reduced to 4% were issued to holders of the \$103,032 original mortgage. Interest for the first two years at the rate of 4% is cumulative only to the extent available out of earnings and not paid; thereafter it is fully cumulative.²⁴ There are no prepayments on these income bonds. They are redeemable, however, by means of a sinking fund to be established out of earnings.²⁵

²² Of this amount \$3,500 has been subordinated. Coupons to the amount of \$711.49 held by the underwriting house on the April 1, 1931 interest date were also subordinated to the lien of the bonds.

²³ The instrument securing these bonds is a new trust indenture.

²⁴ Any cumulative interest not previously paid will be payable at the maturity of the income bonds.

Common and preferred stock has been issued by the building corporation, but it will pay no dividends until the income bonds have been redeemed. The distribution of this stock has been as follows: to the holder of the \$3,500 subordinated bonds, certificates representing one share each of common and preferred stock for each \$100 in principal amounts; to each bondholder, one income bond and one share of common stock for each \$100 bond (This common stock represents 55% of the entire issue.); to holders of the second mortgage, certificates representing the entire issue of 5% preferred stock (110 shares);²⁶ to holders of the third mortgage, certificates to the amount of 22½% of the common stock of the corporation which represents an interest in the property after the income bonds and preferred stock; to the equity holders, certificates representing the remaining 22½% of the common stock.

Critique. In this type of reorganization the bondholders are given securities equivalent to more than 100 cents per dollar invested, since in addition to their income bonds, which pay up to 4% if earned, they receive a certificate representing a share of common stock for each \$100 bond deposited. This represents a share in the equity. The principal amount of the investment is therefore not reduced. But "income bonds are the weakest of all obligations resting on general credit, since they involve no definite contract between the holders and the trustee to pay a stated

²⁵ Notices offering to take up their bonds will be sent out semi-annually to bondholders. These will be purchased at the lowest market price available. If there are no offers to sell, a certain number of bonds will be drawn by lot.

²⁶ They received on the basis of 1 share for each \$100 of indebtedness. They will be entitled to payment on liquidation of \$100 a share together with all unpaid cumulative dividends accrued before any payments may be made on the common stock.

rate of interest. They are a charge upon the company's income, but not upon the corpus of the property."²⁷ The bondholders cannot enforce their claim except by proving that the income has been earned. Because of the uncertainty of interest, the holders of income bonds are frequently in court and there is opportunity for manipulation and misrepresentation. Earnings can be plowed back into the property and no interest paid for an indefinite time if the trustees so decide. In buying real estate mortgage bonds, investors placed their money in what they believed to be conservative and safe issues. They now find themselves the owners of speculative securities, and they lose at least 2% a year in interest besides. Through their ownership of 55% of the common stock they are given an opportunity to share in any future prosperity of the property, but at the present time they receive no dividends until the income bonds have been redeemed.

A definite plan for the retirement of the bonds is provided. By retiring bonds at market price, the outstanding bonds are better secured and a quicker reorganization is accomplished. Moreover, the sinking fund provides a market for those who wish to sell their bonds. However, to some investors the uncertainty of redemption is an unsatisfactory feature. In addition, income bonds are not redeemed at par unless there are no offers. They will be purchased at the lowest price offered.

The equity holders, through their common stock, are given an opportunity to share in any future prosperity of the

property, after the new bonds have been redeemed. But they have lost title to the property to the new corporation, in return for which they have received 22 1/2% of the common stock in the corporation which is superseded by the income bonds and preferred stock.

Group IV. Issuance of Other Types of Securities than Bonds

Another group of reorganization plans provides for the issuance of common and preferred stock, voting trust certificates, and participation certificates in return for deposited first mortgage bonds. The building which illustrates this plan is a three-story and English basement, pressed brick apartment structure situated on a lot 125' by 117'. The building contains 15 four-room apartments and 15 three-room apartments. Default occurred in the payment of the interest and principal falling due December 20, 1931, and in the payment of taxes. From an inspection of the operating statements it is immediately apparent that the net income was insufficient to provide for the fixed requirements on the old first mortgage. A bondholders' protective committee was formed, bonds were deposited, the foreclosure sale was held and confirmed by the court, and the non-depositing bondholders were eliminated.

A new corporation was organized to take title to the property. A new loan of \$22,000 was secured at 6% and is now a first lien upon the property. Payments of \$1,000 are due on this loan yearly to August, 1937, when \$18,000 is due.²⁸

²⁷ A. S. Dewing, *The Financial Policy of Corporations*, Rev. Ed. (New York: Ronald Press, 1926), p. 166.

²⁸ The proceeds of this new loan, together with accrued income from the property, were used for payment of past due taxes and the expenses of foreclosure

proceedings. Had the new loan not been secured, the committee expected to continue with the plan, paying the foreclosure and reorganization expenses, taxes, and title clearance out of earnings of the property before making any distribution on the new securities to be issued to the bondholders.

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Each former bondholder who deposited his bonds received a trust certificate for one share of preferred stock²⁹ for each \$100 of bonds deposited and scrip for interest at 5% from the last interest date. The preferred stock is entitled to dividends of 5% a year if earned by the new company; if less than 5% is earned, the amount is to be distributed to the preferred stockholders semi-annually. If 5% is not earned, the difference between 5% and the amount of dividends paid shall accumulate.

The underwriting house had made advances on the old mortgage for interest and principal amounting to \$1,500. Trust certificates for preferred stock to the amount of \$1,133.32 were given to the underwriting house to cover these advances.

Each bondholder also received a trust certificate for $\frac{1}{2}$ share of common stock for each \$100 in bonds deposited. The underwriting house received a trust certificate for $\frac{1}{3}$ share of common stock for each \$100 in advances made for interest and principal. The common stock issued to the bondholders and to the underwriting house equaled 50% of all common stock of the new company.

Trust certificates for the remaining 50% of the common stock of the new company were given to the equity holder in return for his cooperation in the foreclosure proceedings and in the reorganization plan. These trust certificates carry the provision that, in the event dividends on the preferred stock at the rate of 5% a year are not paid at the end of a five-year period, they shall be cancelled. The bondholders will then automatically and without further ex-

penses or reorganization own 100% of the common stock of the new company with the exception of that given to the underwriting house. The common stock issued to the owner is subject also to recapture upon certain conditions.

A total of 986 shares of cumulative preferred stock and 932 shares of common stock were issued.

All net income of the new company is to be paid monthly into a sinking fund.³⁰ The management of the property is under the supervision of the three trustees. The owner has afforded sound management for the property in the past and will be continued under a five-year contract, which, however, may be cancelled by the three trustees if the operation of the property should at any time become unsatisfactory.

Critique. Bondholders under this plan have given up a strong for a weaker security. Their original security was a promise to pay a certain sum of money and interest upon it at a definite rate. From the position of creditors they have changed now to the position of shareholders in the new company.

Through their preferred stock which is equivalent in par value to their original holdings, bondholders will receive, if earned, a cumulative 5% interest. This is the first claim on net earnings after interest and principal on the new first mortgage have been paid. But, at the most, bondholders will receive 5% on their preferred stock which is 1% less than their bond interest. Furthermore, a new loan of approximately $\frac{1}{2}$ of the old mortgage is placed on the property with its attendant

²⁹ The preferred stock is preferred both as to dividends and assets and is senior to all securities issued by the new company with the exception of the new first mortgage made for reorganization and foreclosure expenses. The preferred stock shall be redeemed at par and accrued dividends.

³⁰ After payment of taxes, interest, principal on the new first mortgage, and 5% dividends on the preferred stock, or accumulations thereof, $\frac{2}{3}$ of the funds remaining in the sinking fund will be used to retire preferred stock at par and accrued dividends. If any funds remain, they are to be used for dividends on the common stock and other corporate purposes.

interest and principal payments. Considerable time will be required for the property to produce enough to take care of this new obligation and the payment of preferred dividends will be delayed accordingly. In addition, the possibilities of dividends on the common stock seem remote. The trust has been set up for a 10-year period which seems short in view of the heavy fixed charges which the building will have to meet.

The plan is most favorable to the equity holder. Instead of being squeezed out through foreclosure proceedings, he retains an interest in the property and will receive dividends on his common stock if earned. He is retained as manager and therefore has every incentive to make a success of his building. However, in the event that dividends on the preferred stock at the rate of 5% a year are not paid at the end of a five-year period, the trust certificates given to the equity holder are cancelled. The equity holder, therefore, may lose his entire interest. By the removal of fixed interest rates and by distributing dividends as they are earned, the plan is adjustable to the present situation in the rental market.

Plan 11 is similar to the reorganization just described with a few exceptions: (a) voting trust certificates representing shares of stock only are used. Bondholders hold the entire number since the equity holders and junior interests have been eliminated by foreclosure; (b) no sinking fund is provided for the redemption of the voting trust certificates.

³¹ Prior maturity bonds to the amount of \$5,500 are in the possession of a bank. An agreement was made to cancel \$3,100, and to place \$1,400 on a parity with other bonds in return for eliminating foreclosure proceedings.

³² A beneficial interest is the interest that a bondholder has in the net income and proceeds of the property after the title has been taken in trust for him and

Plan 12 differs slightly from the preceding arrangement. Participation certificates are issued to depositing bondholders instead of voting trust certificates.

Group V. Use of the Trust Form

Trust with Certificates of Beneficial Interest. The property in this case (Plan No. 13) is a three-story brick and stone building containing 31 apartments: twenty-four 4-room, six 5-room, and one 4-room in the basement. The trust deed secured bonds totalling \$140,000 at 6½%, of which \$29,000 have been retired. At the present time \$107,900 are outstanding as a first lien.³¹ All the bonds have been deposited except two of small denominations and money is available to take up these at face value if they ever appear.

Under this type of reorganization three distinct forms of management have been evolved: (1) management by a board of managers; (2) trustee managers subject to the direction of a board of managers; (3) pure trust, which means management by a trustee and elimination of the board of managers.

The property in Plan 13 used the second of these methods; title to the property was placed in a trustee and the management is directed by three trust managers. The trustee delivered to the bondholders' committee a certificate of beneficial interest³² which states that the committee is the owner of the entire beneficial interest in the *net income and proceeds* of the property in the trust, subject to conditions con-

the bonds cancelled. It is evidenced by a certificate. It resembles a share of stock in all respects except that title is held by a corporate trustee instead of by a corporation. Like shares of stock, it provides for participation in all earnings and there is no personal liability. No voting privileges are allowed except those of a negative character, such as voting against certain proceedings and terminating the trust.

tained in the trust agreement. Holders of these certificates have no claim or interest, legal or equitable, in any of the property covered by the trust agreement, but only an interest in the *net income and proceeds*.

Upon written direction of the trust managers, the trustee issued certificates of interest for such total number of units and to such persons and in such amounts as the trust managers and the bondholders' committee directed.³³ All net income and proceeds, with the exception of reserves³⁴ established by the trustee and other deductions provided for in the trust agreement, shall be distributed to owners of the certificates of interest in such proportion as the number of units held by each such owner shall bear to the total number of units outstanding. If not sooner terminated, the trust ends within 15 years.

Foreclosure proceedings were not necessary since the owners turned over their equity on reasonable terms. They are given the right to purchase, within two years, all preferred certificates of interest at the present par value of the bonds. If at the end of the two years' time any preferred certificates of interest are outstanding, the owners will be given an additional year in which to purchase them, at their par value, but only in case during that year the certificate owners have received 4%. It is understood that during the third year $\frac{3}{4}$ of 4% or 1% shall be deposited with the trustee either from earnings re-

ceived from rentals or from some other source, at the end of each three months' time; otherwise a sale of the property may be made without consent of the owners. If at the end of that time, preferred certificates are still outstanding, the owners have an additional two years in which to purchase the certificates at their par value, but only in case no sale has been made.

The trust managers have authority to sell the property at any time during this third year if the owner fails to fulfill the terms, or the property may be sold after the third year. Owners of the preferred certificates of interest must be notified, however, and if $\frac{1}{3}$ of them object the sale cannot be made. If the property has not been sold after five years, or if the owner has not taken up all preferred certificates, his interest can be entirely cut off by payment to him of \$500. The owner's right is evidenced by a common or subordinate certificate of interest.³⁵

For the property described in Plan 13 a new mortgage of \$18,000 was negotiated to pay all back taxes and expenses of reorganization. This new loan was a five-year straight mortgage at 6%. Holders of preferred units of beneficial interest will receive 4% if earned. Any excess earnings are placed in the sinking fund. No income reverts to the equity holder until the certificates of beneficial interest have been redeemed.

Critique. The outstanding weakness in this plan is the type of instrument given to the bondholder in return for

³³ Upon the issuance of such certificate of interest, the certificate of beneficial interest issued to the bondholders' committee became void.

³⁴ The trustee shall provide a redemption fund which shall be applied to the payment of principal and interest on the trustee's certificates of indebtedness. This redemption fund must be held apart from the general funds of the trust for the purpose of paying the principal and interest on these certificates in the order of their priority.

³⁵ In the case of sale of the trust properties, the net

proceeds, less expenses, etc., shall be divided pro rata among the holders of certificates of interest issued to be paid to each upon surrender of his certificate. Preferred units of beneficial interest shall be paid in full before the owner of the equity can participate. If any certificates are outstanding after a period of five years, all income and the entire proceeds of the sale of the property will go to these certificate holders. Two of the trust managers represent the bondholders and one represents the owner of the equity.

the first mortgage bond which he deposits. His bond is a promise of the future payment of money and is a first lien against the property. His certificate of beneficial interest does not represent an interest in the property itself, but only in its earnings or in the proceeds of a sale of the property.

Certificate holders benefit in that they may participate in earnings immediately. They will receive their first dividends shortly, but their income will be at the rate of 4%, if it is earned, in place of 6½%.

Greater freedom of action is possible under this form of organization than under a voting trust embarrassed with legal requirements pertaining to corporations. With a corporate trustee there is an accessible source of information and a center of distribution for various properties to those who bought bonds of various buildings from the same underwriter, as well as ready machinery for the transfer of ownership. However, experience has shown that the trust managers show so little interest that it is difficult to get them to attend meetings and instead of helping the trustee they are a hindrance. The trustee has no authority to act without them and he cannot get them to act with him. It should also be noted that the trustee upon direction of the trust managers may levy assessments on the outstanding units. There is no limit upon the amount which may be assessed and the certificate holders do not have a chance to approve or disapprove this assessment. They are given but 30 days in which to pay the assessment; otherwise, as many units as are necessary to pay the assessment may be sold. Amendments may be made by the trust managers. If in the judgment of the trustee

or the trust managers the amendment does not materially alter the rights of the certificate holder, it shall be binding on all persons without further notice. There is plenty of opportunity for a difference of opinion here. The trustee and the trust managers are invested with too broad powers.

Since all bondholders have deposited, foreclosure proceedings in the future will never be necessary, as the plan takes care of such a contingency. Heavy expense is thus saved the bondholders. In addition, the new loan was for a much smaller amount than would have been required had foreclosure taken place. This new loan, however, constitutes a lien coming ahead of the rights of certificate holders.

Certificate holders have no voting powers except those of a negative character.

At the bottom of the printed letter explaining the plan sent to all bondholders we find: "All figures and statements in this plan are based upon reports or other information received by the committee, and are believed to be correct." This has a familiar ring. It reminds us of the clause added to bond circulars in very fine print during past years: "The information in this circular has been carefully compiled from sources which are believed to be accurate, after a most thorough investigation. While not guaranteed, it represents the opinion of the underwriting house."

Realty Trust with Income Bonds. When this plan (No. 14) was formulated it was against the public policy of the State for corporations to own real property beyond that needed in the transaction of their corporate business.³⁶ This trust plan was, therefore, devised in order to reorganize the finances of many apart-

³⁶ Illinois Legislature, 1933 Session, *Senate Bill 225* (Springfield, Secretary of State, 1933) has altered this

situation by allowing wide power for holding and dealing in real estate.

ment buildings under the direction of one business organization.

The trust organization included in the plan a group of apartment buildings and apartment hotels, ranging in size from 42 to 150 flats each, and with bond issues ranging from \$100,000 to \$2,100,000. These properties were as near as possible to an equal earning basis. Buildings which were in better financial condition were not included, nor were those in worse financial shape.

As bonds are deposited, they are held in trust as collateral and against them are issued registered collateral income trust bonds. As soon as all bonds of an issue are deposited or as soon as the trust completes the reorganization, the old first mortgage bonds are cancelled and new collateral income trust bonds are issued. The total amount of collateral income trust bonds issued is sufficient to cover all buildings placed under this plan but is also limited to a definite amount.

The new income bonds running for 15 years are issued in the exact amounts of the original first mortgage bonds. They do not bear a stated rate of interest but entitle the holder to a participation in the earnings of the entire group of buildings for that year.

Most of the original first mortgage bonds bore $6\frac{1}{2}\%$ interest; one issue was 6% and two 7%. The bondholders have foregone interest on these issues since they have been in default, and some time will elapse before they receive interest on their new collateral income trust bonds. As recompense for this interest foregone, each bondholder re-

ceives in addition to his collateral income trust bond one common share in the trust for each \$100 par value bond.

The common shares are distributed to three groups: (1) Bondholders receive 20%. (2) The management receives 45% ($2\frac{1}{4}$ shares to 1). These shares are allotted to the men who evolved the plan and who are working it out at the present time. This apportionment assures more competent management. (3) The trust receives 35% ($1\frac{3}{4}$ shares to 1). These shares are in return for payments which they may have made to the owner of the building, thereby acquiring some equity. For advances and for obligations of the trust³⁷, preferred shares³⁸ are also issued which bear 5% interest, non-cumulative.

If net earnings for any fiscal year amount to 4% or less than 4% of principal amount of bonds outstanding at the end of the preceding fiscal year, all such earnings on a pro rata basis must be paid in interest to the bondholders. Of the amount over 4% and up to but not exceeding 6%: $\frac{1}{4}$ is also paid to bondholders in the form of interest; $\frac{1}{2}$ goes to the trustee for a sinking fund for the retirement of collateral income trust bonds; and $\frac{1}{4}$ remains in surplus. No interest is paid on any shares until 40% of the collateral income trust bonds have been retired.

The realty trust is created for a period of 15 years and five additional years are granted to bring its affairs to a conclusion.³⁹

Earnings of 2% were declared on August 1, 1931 and of $\frac{3}{4}$ of 1% on August 1, 1932. That the management of the trust has also been asked to take over other groups of issues in which they

³⁷ The trust has also assumed other obligations in the way of taxes, some interest, and prepayments advanced on the buildings at the beginning of their difficulties.

³⁸ These shares have a value in event of liquidation of \$50 per share, and if called by the trustees, \$55 a share.

³⁹ The plan as perfected provides for \$30,000,000 of 15-year collateral income trust bonds; 600,000 shares of 5% preferred stock; and 1,500,000 shares of no par common stock.

have no interest is evidence of the popularity of the plan. None of these have as yet been accepted. The issuance of realty trust bonds has been approved by the Illinois Securities Commission.

Critique. One objection to this plan is that those who hold issues on weaker buildings may be benefited while those holding issues on stronger buildings may find the plan a detriment. The company states, however, that they have included in the trust only those buildings which are as near as possible on an equal earning basis. All may fare better in the end.

An advantage of the plan is the centralized management of a large group of buildings. This centralized management may take advantage of large-scale purchasing power, as well as other economies in operation and efficiency in management. Group handling of buildings is cheaper than separate receiverships. However, the plan is only as good as the management, and its success or failure depends entirely on this factor.

In addition, the outstanding purpose of this trust was to keep these buildings out of foreclosure and receivership. Instead of sacrificing them in a highly disorganized market such as now exists, these properties are being conserved for a day when they may return the maximum value to all parties. Such action results also in conserving income by eliminating the huge costs of foreclosure and receivership.

A wide diversification of investment is offered since the collateral income trust bond represents an interest in a large group of buildings instead of but one. But the securities offered in lieu of the first mortgage bonds are inferior as to strength and security.

No distribution of earnings is made on any of the common or preferred stock until 40% of the collateral income trust bonds have been retired. However, in-

stead of holding a promise to pay a certain stated interest, bondholders now receive participation in the earnings of the trust if, when, and as they are earned. Interest is also non-cumulative.

This type of organization offers a continuity of management and control which is not possible in many other forms. It is also a flexible, economical, and convenient type of organization. Its most prominent disadvantage is that the courts have not been uniform in their interpretation of the relationships which are created by this instrument.

If the owner does not want to sell his interests outright to the trust, he can place the control of the buildings in the hands of the trust. He retains some financial interest in the property. If he turns over the control of the property to the trust, he can come back into active management when the bondholders have been satisfied. However, it is impossible for the owner to continue his active interest in his property; he must either sell or give over control to the trust. He, therefore, foregoes any possible income from the property until the bondholders have been satisfied.

Trust with Participation Certificates and Stock. Plan 15 is an impracticable, cumbersome and complicated set-up involving the distribution of many securities. It was planned to issue trust bonds, participation certificates, special participation certificates, and preferred and common stock. The reorganization was operative for a time but was finally abandoned because of lack of confidence in the promoters. Also it was not adapted for a falling market and therefore not suitable for the present time.

Summary

The 15 plans analyzed here differ primarily in the type of instrument given to the bondholder after depositing his old first mortgage bond. The re-

organization varies from a simple adjustment of principal or interest or both to an entirely new organization issuing several kinds of complicated securities. The choice of plan, however, must be largely determined by the condition of the building, its future income possibilities, and the degree of cooperation between all interested parties.

Certain recent events since this article was written promise significant new developments in solving the problems of defaulted bond issues. The amended Bankruptcy Act, passed during the 1933 session of Congress, opens new possibilities in reorganization methods. On January 8, 1934 for the first time advantage was taken of the new relief offered. Two Chicago bond issues, totaling \$300,000, were reorganized under the supervision of the federal court "without benefit of foreclosure or receiver." In both instances the owner of the property continued to manage the building under jurisdiction of the court.

A petition was filed in the United States District Court for "composition and extension" under the federal Bankruptcy Act. The list of bondholders was surrendered and a meeting of all bondholders was called. This offered an opportunity for debtors and creditors to come together and discuss a feasible solution. Since the proceedings were under the exclusive jurisdiction of the federal court, no single bondholder nor minority of bondholders could force a program inimical to the majority.

A decision recently handed down in the appellate court for the Chicago district, ordering the trustee to bid in the property and manage it for the benefit of *all* bondholders, promises to revolutionize reorganization of defaulted issues, providing the trustee is amply protected by the court in the

performance of his duties.⁴⁰ The decision was delivered in the case of *Melvin L. Straus, as trustee v. The Chicago Title & Trust Company, as trustee* and involved \$877,000 in bonds against an eight-story apartment hotel in Chicago. Prior to the foreclosure sale, an owner of \$5,000 in bonds attempted to file an intervening petition asking the court to order Straus, in his position as trustee, to bid in the property for the bondholders. The trial court refused. On appeal to the appellate court the decision was reversed.

Under this ruling the trustee in bidding for the property represents *all* the bondholders, and his management after the sale is in the interests of *all* the bondholders. It has been customary up to the present time for bondholders' committees representing depositing bondholders only to bid in the property. Those who do not deposit with the committee are eliminated in the sale. Under this decision the trustee will manage the property until some disposition is made of it; proceeds will be distributed among all bondholders.

Such a procedure coincides with the expectation which existed when the bonds were sold—namely, that the trustee would be the one who would take necessary action for the protection of all bondholders upon default of certain provisions in the trust deed. If this procedure becomes the established law, it will undoubtedly mean the removal of all bondholders' protective committees with their attendant expenses and delay and the avoidance of receiverships. Properties can also be reorganized without registration under the Securities Act since no new securities will need to be issued. Recent events thus indicate that the courts are beginning to assert their powers in behalf of mortgage bondholders.

⁴⁰ App. Ct. of Ill., Advance Sheets, January 15, 1934.

II. The Development of Commission Regulation of Public Utilities in Ohio*

By EDWIN T. HELLEBRANDT

THE present Ohio Public Utilities Commission, as pointed out in the first installment of this article, is a mandatory type of commission with positive powers over rates and service, but only within the limits of the home rule amendment to the State Constitution.²¹ No study of this Commission can afford to ignore this jurisdictional limitation. Since the adoption of this amendment in 1912, the Commission has been forced into the situation of attempting to function as a continuous regulator of the public utilities in the State while having only sporadic and incomplete jurisdiction. This critical appraisal of the regulatory policies of the Commission is therefore made with a full realization of the constitutional difficulties which beset its path.

To measure the effectiveness of any instrument requires a yardstick of some kind. A comparison with the work of other commissions would be valuable as a guide in the construction of such a yardstick, but the scarcity of studies of other state commissions makes this practically impossible. As a substitute, an attempt will be made to appraise the work of the Ohio Commission in the light of what are generally held to be the most effective methods of regulation.

To the public, regulation of public utilities means control of their rates and service, and, although control is exercised over many other activities and

over management itself, these are the most important fields of regulatory activity and its ultimate justification. It is but natural, therefore, that satisfactory rates and service are so widely used as proof of the effectiveness of regulation.

Control of Rates

The rate problem has been complicated by a host of court decisions determining how commissions must proceed and these have served to subdivide the problem into a number of related issues. The underlying theory of rates implies total revenues sufficient to cover the following costs of service: (a) operating expenses, (b) depreciation charges, and (c) a fair return upon the fair value of the property devoted to the service. The determination of whether the return to investors is a fair one necessitates the finding of the fair value of the used and useful property. This problem will be considered first.

Valuation. Valuation has always been, and is still, a sore spot in administrative commission regulation. Beginning with the decision of the United States Supreme Court in the case of *Smyth v. Ames*²² the valuation problem has gradually resolved itself around the relative merits of original cost, its near cousin prudent investment, and reproduction cost new as the primary determinant of the fair value.

organization of the Ohio Commission, and a quantitative analysis of its dockets. Footnotes in this section are numbered consecutively with those in the preceding installment.

²¹ Article XVIII.

²² 169 U. S. 546 (1898).

* *Editorial Note:* This is the conclusion of the article which began in the November, 1933 issue of the *Journal* (Vol. IX, pp. 395-409). The first installment reviewed the history of the Ohio Commission, the peculiarities of the Ohio public utility law, the

A majority of the United States Supreme Court has gradually given to reproduction cost new less depreciation the controlling place in the determination of fair value for rate-making purposes. But many critics have found serious objections to this method of valuation. The most important of these points out that the reproduction cost method of valuation is grounded upon a comparison of public utility property with that used in competitive industry.²³ These critics hold that because of its use in a controlled market public utility property must be considered differently than other private property. As Mr. Justice Brandeis has said: "The thing devoted by the investor to the public use is not specific property, tangible and intangible, but capital embarked in the enterprise."²⁴ By making this analogy, the majority of the Supreme Court has been comparing two dissimilar concepts—namely, competitive and public utility property.

A further objection attacks the almost universal use of the reproduction cost method of valuation as applied to the actual plant, whereas the concept as it is used in competitive industry applies to an identical service. That is, in the public utility field reproduction cost has been used generally to find the present cost of construction of the actual physical plant irrespective of any changes or improvements in the arts. The resultant is thus somewhat of a hybrid, being neither a true reproduction cost nor the original cost.

During recent years the utter unreality of the reproduction cost has been especially striking. A reproduction value is given to property which is no

longer being manufactured because of developments in the arts and for which prices therefor cannot be obtained. Certain intangible items are similarly given values which can be little more than estimates. The whole process thus becomes increasingly speculative and unreal.

An additional objection of some importance is the costliness and lack of stability of these valuations. The procedure which must be followed is complex and usually long drawn out. The determinations of fact and estimate are numerous and expensive to obtain, and once found are virtually worthless in subsequent proceedings because the courts have said that the commissions must make new valuations in each case. The reproduction cost method thus violates the very considerations which led to the development of administrative commission regulation. Instead of definiteness, speed, and relative inexpensiveness, we have uncertainty, delay, and costliness.

A minority of the United States Supreme Court, led by Mr. Justice Brandeis, has urged the use of prudent investment as the controlling element in the determination of the rate-base. As Mr. Brandeis said in the *Southwestern Bell Telephone Company* case in 1923, in this way the rate-base

"would be ascertained as a fact, not determined as a matter of opinion. It would not fluctuate with the market price of labor, or materials, or money. It would not change with hard times or shifting populations. It would not be distorted by the fickle and varying judgments of appraisers, commissions, or courts. It would, when once made in respect to any utility, be fixed, for all time, subject only to increases to represent

²³ Glaeser, M. G., *Outlines of Public Utility Economics* (New York: Macmillan Co., 1927), p. 470, was among the first to point out this weakness in the reproduction cost theory.

²⁴ *Southwestern Bell Telephone Co. v. Public Service*

Commission, 43 Sup. Ct. 544 (1923). Mr. Justice Rosenberg of the Wisconsin Supreme Court in *Waukesha Gas & Electric Co. v. Railroad Commission of Wisconsin*, 194 N. W. 846 at 848 (1923) made a similar distinction.

additions to plant, after allowance for the depreciation included in the annual operating charges. The wild uncertainties of the present method of fixing the rate-base under the so-called rule of *Smyth v. Ames* would be avoided; and likewise the fluctuations which introduce into the enterprise unnecessary elements of speculation, create useless expense, and impose upon the public a heavy, unnecessary burden.²⁵

The prudent investment method of fixing the fair value implies a valuation based upon the actual cost of the property at present devoted to the public use. It meets to a far greater degree, than does the cost of reproduction method, the tests of stability, speed, and relative inexpensiveness. Securing the financial stability of utility companies is one of the principal purposes of regulation. Without assurance of a sound financial position the companies would find it difficult to obtain the credit necessary to meet adequately the demands of the public. Prudent investment as the basis of fair value, therefore, results in a fixed, certain value changing only with additions and improvements and the retirement of useless property. In this way investors would always know where they stand with respect to rate determinations by the regulating agencies of government. The speculative element based upon a fluctuating rate-base would be removed.

In Ohio, however, for all practical purposes, the General Assembly has by legislation limited the Commission to the use of the reproduction cost method of valuation.²⁶ The public utility law specifically stipulates those facts which the Commission must find and report on in making valuations. These, at great length, determine the procedure which must be followed by the Com-

mission in each valuation. They emphasize very strongly the reproduction cost of the physical property in its present condition as the principal determinant of fair value. This must be found by determining the reproduction cost new of the actual operating plant—i. e., the identical plant method—and then by deducting an amount equal to the difference between the operating condition of a new plant and the one actually in operation as observed depreciation. Land must be valued on the basis of its estimated market value. The Commission is given authority to consider other evidence and to report on other methods of valuation, but these are not named specifically. The emphasis is in this way placed by statute upon the reproduction cost new less depreciation.

In a separate section of the law the Commission is given the authority, in language which is not particularly clear, to keep a valuation up to date, once it has been made, by the addition or subtraction of the value of any property changes which might occur from time to time.²⁷ The two sections are not directly tied together and have resulted in conflicting interpretations.

At first, the Commission interpreted these sections to mean that an original valuation and the valuation of additions and improvements must follow the procedure outlined in the sections emphasizing the reproduction cost. Once a valuation had been determined in this way, however, the other section could be applied to keep it up to date. It was on this basis that the Commission rendered its decision in the *Van Wert Gas Company* case in 1921.²⁸ In 1918

²⁵ 261 U. S. 276 (1923).

²⁶ G. C. 499-9.

²⁷ G. C. 499-11.

²⁸ P. U. R. 1925 A 69. In the case of *In re Union Gas & Electric Company*, Ohio P. U. Com. Report, Vol. 6, pp. 65-7 (1918), the Commission enunciated its position: "If there had been regulation of public utilities

(Footnote 28 continued on page 81)

the Commission determined the value of the property of this Company. In the 1921 case the municipality introduced this valuation into the evidence.

The Company offered two new appraisals based upon prices current in 1921. The Commission, stating that it found nothing in the evidence to show such material change in the physical property of the Company to necessitate a revaluation, used the 1918 valuation brought up to date by adding the value of additions and subtracting depreciation.

The Company appealed the order of the Commission to the State Supreme Court, but it was affirmed. The Court said that this use of the prior valuation was supported by the statute and that it was not within its authority to question the judgment of the Commission. The Company then applied to the

Federal District Court for an injunction restraining the Commission from using this valuation on the ground that it was being improperly used as an inflexible rate-base.²⁹ The Federal Court upheld the Company's contention and declared that a new valuation must be made in each case. The case was not appealed by the Commission.

As a result of this decision the Commission abandoned this interpretation of the statute and took the position that the cost of reproduction new less depreciation must be given the greatest weight in a valuation proceeding.³⁰ As has been indicated above, the statute does lend itself to such an interpretation. Consequently, the Commission has been more or less forced into a position more nearly in line with that advanced by the majority of the United States Supreme Court.

Therefore, in so far as the reproduction cost new less depreciation method for determining the fair value of utility

(Footnote 28 continued from page 80)

from the beginning and if the books had always been so kept that it was possible to obtain the cost of the investments judiciously made, it is probable that that would have been taken as the basis for rate making; for if the utility receives a fair return on its investment made in good faith, it would seem that that would be fair both to the public and to the utility. But since most utilities grew up gradually over a long period of years, when they were regarded as essentially private enterprises, the law did not require them to keep books with that minute accuracy which is now required under the uniform system of accounting; and it would be impossible perhaps to ascertain the entire investment of a single utility which grew up prior to the days of regulation. For that reason resort is had to an attempt to find the present value of the property as distinguished from the original cost. Once having ascertained that, we begin anew as if it were the original investment, and adjust the books and accounts of the utility to conform thereto. The present value so found becomes, for the purpose of rate making, the actual value; and as future expenditures must be made under the supervision of the Commission, the investment may always be obtained by adding thereto capital expenditures from time to time as they are made, and subtracting deductions for withdrawals . . .

"It is a mistake to assume that when the value of the investment has once been obtained, it should continually rise and fall, following the waves of fluctuation in the market prices of labor and materials . . . Once fixed it should remain constant only as it is added to by capital changes, or reduced by withdrawals in the future; for it is the value of the investment upon which

the company should receive and the consumer should pay a return, whether in times of prosperity or in times of adversity. The value having once been determined, there is no more reason for changing it from time to time following the rise and fall of the cost of labor and materials, than there would be for changing the face value of a promissory note given in the ordinary course of business, causing their face value as a basis for earning interest to fluctuate with the fluctuations in the purchasing power of a dollar. But the varying cost of operating the plant; the cost of repairs and maintenance; the cost of labor and fuel, and of materials for these purposes, should be taken care of in an allowance for operating expenses, if such a sliding scale is permissible under the law. The return should be a fixed and permanent charge, affected only by future capital charges, and all fluctuations in the cost of maintaining and operating the plant should be provided for in a flexible operating expense. That would be just to the producer and just to the consumer."

²⁹ *Van Wert Gas Co. v. Public Utilities Commission*, 299 Fed. 670 (1924).

³⁰ *In re Ohio Bell Telephone Co.*, Ohio P. U. Com. Report, Vol. 19, p. 66 (1931), the Commission in making its tentative valuation said that it was guided by ". . . the decisions of the courts fixing the principles to be followed in such valuations and has given great weight to the theory of reproduction cost new less depreciation."

property for rate-making purposes has been shown to be uneconomic and of questionable effectiveness, so far has this Commission failed in its regulation. To the use of this method of valuation can be traced the innumerable delays occasioned in rate proceedings. Its costliness has served to render impossible the performance of many functions by the Commission which would increase materially its effectiveness.

Going Value. After the value of the physical property and land of a utility has been ascertained, a determination of the so-called "going value" is usually regarded as necessary in fixing the rate-base. The customary definition of going value states that a going concern established and doing business in a community is worth more than one consisting only of a mass of physical units of property, and this difference between a going and a dead plant is termed going value.

The rate-making rule of *Smyth v. Ames* makes no reference to this intangible element of value. However, certain commissions and lower courts early took the position that it was a necessary factor to be considered in making valuations. In 1915, in the Des Moines Gas Company case,³¹ the United States Supreme Court agreed that it should be an element entering into the consideration of fair value. But the Court at that time, and since, has not been able to agree upon the method to be used in determining the amount of this most intangible of intangible values.

One of the most conservative means which has been developed to determine this item is known as the Wisconsin method. It is based upon an estimate of the actual losses, or rather deficits below a fair return, which were incurred during the developmental period. It

assumes that regulation implies that a utility should be permitted to earn a fair return upon its fair value and, if it has not earned this amount in the past, the deficit should be included in the rate-base. When reasonably applied, this method should result in a rate-base which is on the whole fair to all parties. However, it has not always been used conservatively and in 1922 the United States Supreme Court in the Galveston case repudiated the doctrine.³²

Because of this uncertainty the majority of the commissions and courts have applied the rather unscientific method of allowing a percentage of the value of the property of a utility as going value. They have apparently followed this method as an easy way to meet the dictum of the United States Supreme Court in the Des Moines case. An example of how this method is often used is seen in the opinion of the Ohio Public Utilities Commission setting a tentative valuation in the Ohio Bell Telephone case.³³ The state's witness, Mr. Hagenah, had allowed 10% for going value. He testified that he arrived at this percentage by an examination of numerous decisions of other commissions and the courts. The average percentage allowed for going value in these cases was approximately the 10% he had used. The Commission stated that in none of these cases, as far as it could discover, had a formula been developed which could be generally applied. Yet this unscientific method is common to many commissions and courts.

In the judgment of the writer the plan proposed by the New York and Massachusetts Commissions appears to be the most defensible. Legitimate de-

³¹ 238 U. S. 163 (1915).

³² 258 U. S. 388 (1922).

³³ Ohio P. U. Com. Report, Vol. 19, p. 67. (1931).

developmental and organizational costs are incorporated into the rate-base in the form of overheads and those chargeable to the acquisition of new business, with all that it implies in the way of past deficiencies in earnings, are incorporated in operating expenditures. In this way these costs are recognized and yet are not so inexorably tied to the rate-base as to make their separation difficult at a later time. Under this plan, if at any time in the future earnings happen to be, or were definitely allowed to be, higher than a fair return upon the fair value of the property of the utility, it would be quite easy gradually to wipe out these losses once and for all. In this way the danger is removed that the going value allowance may become a convenient means of inflating the rate-base by applying market value theories to a process which must of necessity be dissociated from many features inherent in valuations for market purposes, while at the same time the legitimate claims of utility investors are recognized.

In line with earlier court decisions concerning valuations, the Ohio General Assembly did not mention going concern value as an element to be considered by the Commission in determining the rate-base. This is probably the result in part of the fact that the statute refers almost exclusively to the valuation of the physical property of the utilities. Intangible values did not acquire much importance until some years after these laws were enacted in 1913.

Yet the Commission early began to make going value allowances in valuation cases. The method used to determine the amount to be allowed in a particular case was theoretically based upon the estimated cost of reproducing the going concern, undoubtedly be-

cause of the reproduction-cost method of valuation followed with respect to physical property. Actually, the Commission fell into the habit of most commissions and courts and began to allow a percentage of the value of the property for going value, whether any actual cost had been proved by evidence or not.

In 1916 and 1917 the Ohio Supreme Court in passing upon several valuations practically overthrew this doctrine of the Commission. It stated that only a "cost of attaching business" should be allowed and this only when actually proved by direct evidence. Taking this as a mandate of the court, the Commission has until recently made no direct allowances for going value, limiting itself to this cost of attaching business.

More recently the Commission has again tended toward making an allowance for going value, stating that it "... must yield to the repeated decisions of the court (citing Federal Court cases) that such value is a property right to be considered in determining the value of the property upon which the owner has a right to make a fair return."³⁴ But it could not reconcile itself to the methods followed by either the company's or the state's witnesses in the determination of this item. While recognizing the sanction which both courts and commissions have placed upon the percentage method, it felt that this was too arbitrary and uncertain a method to be a fair measure of value. The Commission said that, if the engineers had presented evidence to show what it would cost to attach the company's subscribers to the bare bones of the plant, it might have been able to determine the cost of this intangible element of value. Since they had not, it applied approximately the

³⁴ *Ibid.*, p. 75.

percentage determined by the Illinois Commission in the Illinois Bell Telephone Company case and made an allowance of 3¾% of the reproduction value of the physical property for going value.³⁵

This is actually nothing more than the "cost of attaching business" which is required by the Ohio Supreme Court. If the definition given above is applied to this concept, one sees that it is not really going value at all in the same sense in which that term has been used by the Wisconsin, New York, and Massachusetts Commissions. The primary element of going value for these commissions is the past losses or deficient earnings which have occurred during the stage in the life history of a utility when it is developing from a going plant into a going business. The one is a plant ready to operate but without customers and therefore without revenues. The other is a business evidenced by a going plant which is serving customers and earning a fair return upon the capital invested in the enterprise.

In the Ohio Commission's most outstanding recent case both the majority and minority decisions disallowed any going concern value. On appeal the Ohio Supreme Court affirmed this stand, citing the decision of the United States Supreme Court in the Los Angeles Gas & Electric Company case handed down early in 1933.³⁶ The Commission has, therefore, been less generous with the utilities on this score than many regulatory bodies, although the lack of any appeals to the federal courts upon this ground leads one to wonder whether it may not be making sufficiently generous allowances for other purposes to

appease the utility companies on this score. An adequate answer to this query will have to await intensive studies of the utilities themselves which would show how they have fared under the Commission's regulation.

Depreciation. Once the rate-base has been determined it is still necessary to determine the reasonableness of the operating expenses and the annual charges to be made for depreciation before the fairness of the return upon the rate-base can be considered. The operating expenses will be discussed later. Depreciation is usually considered to be the wastage or consumption of physical property resulting from its becoming worn out or obsolete. The depreciation allowance is made as a pecuniary offset of this loss. In this way it is possible to keep the capital fund intact although the physical property gradually wears out and must be replaced. Thus the aim of the annual charge for depreciation is the maintenance of the investment fund. Unless it is maintained the corporate credit will sooner or later suffer and with it the rates and service.

In the Knoxville Water Company case in 1909 the United States Supreme Court approved of these annual depreciation charges and the reserves built up from them.³⁷ As was true in the case of going value, the Supreme Court did not indicate how the amount of this annual charge should be computed. The result has been the introduction of additional confusion and uncertainty. The two methods most widely used are usually known as depreciation accounting and retirement accounting. The first is based upon an equal division of the estimated loss in value over the estimated

³⁵ *Smith v. Illinois Bell Telephone Co.*, 282 U. S. 133 (1930).

³⁶ 289 U. S.; P. U. R. 1933 C 229. The Ohio

case is *Columbus Gas & Fuel Co. v. Public Utilities Commission*, P. U. R. 1933 C 238.

³⁷ 212 U. S. 1 (1909).

life of the property. In this method, during the earlier years, the amount set aside each year is considerably in excess of the actual depreciation, while the opposite is true during the later years of the property's life. Thus the reserve account may at times reach sizable proportions, although finally it should exactly balance the depreciation. This is also sometimes called the straight-line method.

Retirement accounting is based upon an annual charge credited to retirement reserve which, it is estimated, will equalize as nearly as possible the actual losses because of retirements of property over a reasonable period of years before and after the year for which this charge is being estimated. Under this plan the amount set aside each year tends to be small in the earlier years and to grow larger as the property nears its ultimate retirement. The final result is the same for both methods, and in a stabilized concern—one which is neither growing nor declining in size—the annual charge tends to be the same. The method used is, therefore, of little practical importance provided one policy or the other is consistently adhered to.

A problem related to depreciation, and one of greater importance, is the consideration to be given to excessive depreciation reserves, and the converse problem of inadequate past depreciation allowances. The United States Supreme Court in the New York Bell Telephone Company case, decided in 1926, held that this reserve becomes the property of the company and, if excessive, may not be used to offset a lower return at some future time.³⁸ In

this particular case the claim that the annual charge for depreciation was excessive was in question and the result obtained by the Court was probably correct. But for the Court to hold that excessive reserves for depreciation are the company's property so that no adequate adjustment can be made in the future is quite unsound. To carry this doctrine to its logical conclusion would make possible a utility whose whole property has been financed by consumer advances in the name of depreciation charges.

The Ohio statute requires all utility companies to keep a depreciation reserve and places with the Commission the duty of determining the amount of the annual charge for this purpose.³⁹ Life expectancy studies of one kind or another are usually used in determining the amount to be allowed annually for depreciation as an operating expense. As has been pointed out by the Interstate Commerce Commission, when observed depreciation is used in the determination of the rate-base, depreciation accounting may easily, and usually does, result in a serious inconsistency of policy. The Ohio Commission, however, avoids this pitfall. It has looked upon this statutory requirement merely as an accounting device to aid the companies in setting up these charges to operating expenses. In determining the amount to be allowed annually it has turned directly to past experience, the evidence as to the present condition of the property, and future probable depreciation requirements.⁴⁰

In its consideration of excessive depreciation reserves arising from excessive charges to depreciation in the past,

condition of the property as found by the engineers, the experience of the company in respect to actual expenditures for depreciation purposes, and the testimony in respect to expenditures made to improve the condition of the property."

³⁸ 271 U. S. 23 (1926).

³⁹ G. C. 614-49, 614-50.

⁴⁰ *In re Ohio Central Telephone Corporation*, Ohio P. U. Com. Report, Vol. 19, p. 28 (1931), the Commission said: "We . . . have given weight to the present

the Ohio Commission has not always followed literally the doctrine of the United States Supreme Court in the New York Bell Telephone Company case.⁴¹ As it said in a recent case: "The fact that the courts have held that the property represented by this reserve belongs to the company does not require that we disregard its existence in considering what would be the company's proper requirement for the future."⁴² In most cases, however, it has held that property represented by these reserves, when used and useful for the public convenience, is the property of the utility and must therefore be included in the valuation. In other words, only actual depreciation may be deducted in arriving at the fair value. Thus, in the Cincinnati Bell Telephone case the Ohio Supreme Court affirmed the position of the Commission that a utility is entitled to an annual depreciation sufficient ultimately to replace the property, that according to the statutes of the State that money after it is collected may be placed in additions and betterments to the plant, since it is the company's money and may be used as it sees fit, the Commission being fully empowered to require adequate service.⁴³

In the diametrically opposite case of inadequate depreciation allowances in the past, the Commission has indicated its intention to follow a course more consistent with that determined by the United States Supreme Court for excessive reserves. In an early telephone case it said:

"... that excessive or inadequate depreciation attributable to past performance can not be credited to or imposed upon the present and future users of the service. It is assumed that the company has recovered adequate depreciation to the date of in-

quiry. In other words, the depreciation rate allowed applied to the present value of the depreciable property is designed to absorb such value during the remaining life of such property."⁴⁴

Reasonableness of Operating Expenses.

The necessity of allowing only reasonable operating expenses, if regulation is to be effective, is easy to understand. The complicated procedure which must be followed by the Commission in determining the reasonableness of rates would be only an empty gesture if they did not have the authority to examine into, and if necessary modify, the expense accounts of the utilities. Only by audits, supplemented by field investigations, can it be ascertained whether the unit costs entered for materials and services are in line with current prices, whether capital costs are not being entered as operating expenses, and whether the entries under the various headings are being made properly and according to requirements. To do this requires large staffs and periodic investigations.

An examination of the organization of the Ohio Public Utilities Commission shows the impossibility of such a procedure in Ohio. The Commission maintains no accounting department for an adequate office analysis of the numerous reports filed by the approximately one thousand companies under its jurisdiction. The auditor probably attempts to perform this function, but with only one clerk and one stenographer it is difficult to see how he could possibly do much more than make a superficial audit. Without adequate office audits to guide them, field investigations would be almost as futile as the proverbial hunting for a needle in a haystack. In

⁴¹ *Cincinnati & Suburban Bell Telephone Co. v. Public Utilities Commission*, 113 Ohio St. 259 (1925).

⁴² *In re Citizens Telephone Co.*, Ohio P. U. Com. Report, Vol. 19, p. 14 (1931).

⁴³ 271 U. S. 23 (1926).

⁴⁴ *In re Columbus Gas & Fuel Co.*, P. U. R. 1933 A 341.

addition, the Commission's field staff is already well occupied with valuation and complaint investigations.

In extreme cases the Commission has ferreted out and disallowed grossly unreasonable operating expenses. These have generally involved holding companies or the subsidiaries of a holding company. In 1930 the Commission disallowed increased operating expenses which occurred when a telephone company passed into the control of a holding company. The Midland Trading Company of Kansas obtained control of the Cambridge Home Telephone Company and in 18 months diverted \$19,659.23 into its own pockets.⁴⁶ The method used was crude and clearly unreasonable. The names of a number of the officials and employees of the holding company were placed upon the payrolls of the operating subsidiary. No services were actually performed for the subsidiary and the salary checks when received were immediately endorsed to the Midland Trading Company. In another case involving the same holding company the Commission said that it considered these payments "... more as unofficial dividends than as expenses allowable by the Commission in determining the rates."⁴⁶

In 1930 and again in 1932 the Commission considered another variation of the same problem. These cases involved natural gas distributing companies in their relations with another subsidiary of their own holding company. The Columbus Gas & Fuel Company case decided in 1932 will illustrate the situation and how it was handled by the Commission.⁴⁷ This Company is a distributing company which buys its gas from a wholesaler, the Ohio Fuel Gas Company. The wholesaler, however,

does not produce a sufficient quantity of gas from its own gas fields to meet the demand of its customers and therefore purchases a part of its supply from another wholesaling company, the United Fuel Gas Company of West Virginia. The distributing company applied for an increase in rates and introduced a contract with the wholesale company setting the price it must pay for its gas at the city gate as its principal evidence. The rate asked was from 60c to 65c per thousand cubic feet and the contract gate rate was 45c. If the Commission had been required to accept this gate rate, it would have had but little leeway since the differential of 15c to 20c was clearly not excessive to meet the operating costs of the distributing company and allow a fair return upon its property. The actual differential finally found to be reasonable by the Commission was 16c per thousand.

There was a common control of these two companies by the same management subsidiary of their holding company, The Columbia Gas & Electric Company. The Commission therefore rightly held that this contract did not set up a valid operating contract, since it was not entered into by companies trading at arms' length. It therefore ordered the Columbus Gas & Fuel Company to present evidence showing the reasonableness of the gate rate. This gate rate was in turn affected by the contract rate at the state line which the Ohio Fuel Gas Company paid to the United Fuel Gas Company for a part of its supply. This West Virginia company was, of course, also a subsidiary of the Columbia Gas & Electric Company. The Commission again ordered the Columbus Gas & Fuel

⁴⁶ P. U. R. 1930 E 65.

⁴⁷ *In re Citizens Telephone Company*, Ohio P. U. Com.

Report, Vol. 19, p. 11 (1931).

⁴⁷ P. U. R. 1933 A 341.

Company to present evidence proving the reasonableness of this state line gate rate. After much delay and vacillation on the part of the Company, the information was finally obtained and the Commission was in a position to render a reasonably just decision.

In these extreme cases the Ohio Commission has functioned well. But it is difficult to see how it can possibly control adequately the smaller leaks in operating expenses with its small staff and deficient organization. The Commission could undoubtedly increase its effectiveness considerably by the development of a strong accounting and field auditing staff for checking the reasonableness of the utilities' expenses.

Rate of Return. The widespread use of the cost of reproduction in determining the rate-base has led to a serious weakness in commission administration of the rate of return. By reflecting the fluctuations in price levels in the rate-base, the rate of return has tended to become more or less fixed, whereas, with the complications inherent in making new valuations, the converse should be the case. As was explained earlier, it would be a relatively simple matter to adjust the rates of return to changes in the purchasing power of money.

Mosher has listed six major objectives which an effective regulation of the rate of return should meet:⁴⁸

"(a) to stabilize profits to the end that speculation may be tabooed from the conduct of the utilities, (b) to enable the utilities to compete in the money markets for funds at low rates for the expansion and progressive development of their services, (c) to reduce the element of risk, (d) to provide an adequate reserve or surplus, not alone to meet various contingencies, but also to assure capital of its due reward in lean years, (e) to promote efficient and economical management, and, if need be,

to penalize waste, extravagance, poor planning and unprogressive management, (f) finally, to see to it that the public is at all times well served and at a minimum price, consistent with the above aims."

On the basis of their orders very few commissions apparently take any or all of these factors into consideration when fixing the rate of return. It is difficult to see how, except by a coincidence, an adequate and thorough investigation of the proper rate of return to be applied could result in the same rate in so many cases. An occasional identical rate could be understood, but this almost complete grouping of the allowed returns around a few rates can only mean a failure on the part of the commissions to give proper attention to this factor in effective regulation. The prevalence of round number percentages is another indication of this fact. One quarter of one percent makes a difference of \$2,500 for each \$1,000,000 in the rate-base, yet only occasionally is a rate of return carried to a half of one percent and almost never to a quarter.

The Ohio Public Utilities Commission has fallen into the practice of the majority of the commissions and has a tendency to apply a fixed rate of return for each type of utility. Thus for water companies the rate of return almost exclusively allowed has been 6%. For the electric utilities it has been 8% and for the gas and telephone utilities 7%. The Commission has given lip service to a consideration of efficient versus inefficient management but actually appears to have done little in this direction. In a natural gas case decided in 1929 the Commission said that in holding 7% to be a fair rate of return it was taking into consideration the efficient management being given by the officers of the company.⁴⁹ Yet the return

⁴⁸ Mosher, W. E. and Crawford, F. G., *Public Utility Regulation* (New York: Harper & Bros., 1933), p. 228.

⁴⁹ *In re Portsmouth Gas Co.*, P. U. R. 1930 A 496.

it usually allowed natural gas companies was 7%. In the converse situation the Commission did allow only 6½% to a gas company whose whole history indicated poor operating and financial management; but this was the exceptional case.⁵⁰

In keeping with its use of the reproduction cost theory for determining the rate-base the Ohio Public Utilities Commission has inclined to the use of a fixed rate-of-return policy. It has in this way followed the trend of the majority of the state public service commissions. By so doing it has failed to utilize an opportunity to offset some of the major weaknesses of the reproduction cost method of valuation by the use of a flexible rate of return. It has, therefore, in this respect failed of its maximum effectiveness.

Conclusion. The Ohio Public Utilities Commission has undoubtedly been at least as effective in its control over utility rates as the majority of state regulatory commissions. Admitting the hampering effect of the detailed valuation provisions found in the Ohio law and the home rule amendment of the State Constitution with its enabling legislation, it seems the Commission should be able to strengthen its position without much change. Probably the greatest single need for the improvement of rate control is an adequately and efficiently staffed accounting department to provide the raw materials and clues upon which investigations can be carried on. To do this would increase many fold the effectiveness of this Commission's control over the rates of the public service companies.

Control over Acquiring and Abandoning the Market

The home rule amendment to the Constitution of Ohio approved in 1912 absolutely removed from the Public Utilities Commission's jurisdiction any control over the entrance of local utilities into a market. This authority is expressly reserved to the municipalities. However, the Commission does exercise a very real control over the markets of the utilities by its absolute authority over their abandonments. No utility may abandon, or be required by a municipality to abandon, any service without first obtaining the approval of the Commission.⁵¹ However, the Commission cannot permit the permanent withdrawal of any service until that service has been continuously offered to the public for at least five years prior to the proposed abandonment.

The United States Supreme Court has consistently ruled that one of the primary duties of a public utility is to serve on reasonable terms all who desire the service it renders. On the other hand, a utility cannot be required to continue operations at a loss if it is willing to surrender its charter and entirely abandon service.⁵² To rule otherwise would be a direct violation of the Fourteenth Amendment, a taking of private property without just compensation. Thus, in situations where a utility desires to abandon a part of its system this power over withdrawals is important. The Supreme Court has ruled in these cases that the utility company may be compelled to operate a part of its system at a loss where the total return from all its service is sufficient.⁵³

This has been substantially the position of the Ohio Commission, although most of the applications asking permission to abandon have been either

⁵⁰ *In re West Ohio Gas Co.*, P. U. R. 1928 C 386.

⁵¹ G. C. 504-2, 504-3.

⁵² *Railroad Commission v. Eastern Texas R. R. Co.*, 264 U. S. 79 (1923).

⁵³ *United Fuel Gas Co. v. Railroad Commission*, 278 U. S. 300 (1928).

by utility companies desiring to withdraw completely from the market or have involved a very small part of the service of a large utility. The first type of case has almost always concerned electric interurban railway companies. These have been rapidly abandoning operations throughout the State and have always been so obviously losing money with no hope of future earnings that the problem before the Commission has really been one of finding the way which will least inconvenience the public. The other type of case has involved the abandonment by steam railroads of station facilities. The development of the private automobile and the motor bus and truck has made unnecessary and uneconomical many of the smaller railroad stations. These the railroads have sought, and in most cases have been permitted, to abandon.

The few remaining cases have involved chiefly a reduction in passenger service by steam railroads. This too has usually been permitted since the public convenience and necessity was generally being satisfactorily met by other transportation facilities. In 1931 an application made by the New York Central for permission to abandon its passenger train service between Toledo and Thurston, Ohio was denied. This passenger service had not paid its way for many years but the freight revenues had more than offset these losses until 1930. The Commission said that 1930 was "... not a typical year in railroad operation and should not be used as a standard by which to gauge the amount of traffic necessary to retain service, either freight or passenger."⁵⁴

The Commission up to the end of 1930 had not been called upon to use its control over abandonments in any case involving a local utility of any size. There have been a few abandonments of

small telephone exchanges for which a substitute service was offered. In the early years one or two small natural gas companies were permitted to abandon service when their supply of gas became exhausted and they were unable to obtain a further supply under reasonable conditions. It is impossible to determine, therefore, what the Commission's policy would be in an abandonment proceeding involving a larger local utility. Yet this authority over abandonments is a most important one, especially in a State having a jurisdictional set-up similar to that found in Ohio. Without this provision it was possible—and such a case actually occurred—for a utility in bargaining with a municipality under the home rule provisions to threaten to abandon service, or a municipality would try to force an abandonment. In either case an unfair situation was possible. Under the present statute the necessity of obtaining the Commission's approval before an abandonment removes this danger.

Control of Capitalization

Commission control over capitalization of public utilities is a direct heritage from pre-commission experience with railroad financing. The danger to rates and service of uncontrolled financing had been clearly illustrated by the time administrative commission regulation was re-establishing itself. As a result, most states included in the powers delegated to these commissions control over the security issues of the utilities. The control applied almost exclusively to those securities which were payable in more than a year. It was felt that the short-time financing of the utilities was of minor importance.

⁵⁴ *In re New York Central R. R. Co.*, Ohio P. U. Com. Report, Vol. 19, p. 124 (1931).

Although most states attached certain blue sky provisions to this authority, the primary objective has been the maintenance of utility credit. A normal, healthy utility is almost continually in need of additional funds for improvements and expansion made necessary by the increasing demands of its customers. Unless its credit is kept good, it must either pay too high a price for the needed funds or else curtail its expansion or improvement program. In either case the consumer suffers by having to pay higher rates or by receiving poorer service.

Public utilities must compete with other industries in the money markets. Investors will not be willing to buy utility securities unless the inducements are at least as attractive as those of other bidders. The law should be sufficiently flexible to permit the Commission to authorize such security issues as may successfully compete with others in the money markets. This has not always been the case. In most states artificial limitations have been set, such as the requirement that stock must be sold at not less than par, or that the amount of bonds outstanding must not be greater than the capital stock. The development of the holding company with its complicated capital structure has also served to befog the issues and in many cases to circumscribe the commission's efforts. These companies, by not directly operating utility property, are outside the jurisdiction of most commissions and yet are able to follow policies which directly affect the credit position of the operating subsidiaries. The policy most often followed is the making of short-time loans which do not need commission approval. The extension of commission authority over the major portion at least of these short-time borrowings is therefore prob-

ably the most important addition needed to bring its powers more nearly in line with the developments in utility financing which have occurred in recent years.⁵⁵

The Ohio statute gives to the Commission an authority over utility securities similar to that usual in most states.⁵⁶ It includes control over all securities payable in more than one year, a designation of the purpose for which these securities may be issued, the authority to permit the issue of more bonds than stock, the right to designate the minimum issue price irrespective of the par or face value of the security. Its principal shortcoming is the lack of any control over the short-term financing of the utilities, particularly those between holding companies and their subsidiaries.

The Ohio Public Utilities Commission has not been outstanding in its control over security issues. It usually approves applications in a routine manner. Although security issues accounted for about $\frac{1}{4}$ of the more than 7,200 formal cases considered by the Commission up to the end of 1930, it has rendered written opinions in only a few cases, usually when denying the application.

In 1928 a power company applied for permission to issue certain stock which it proposed to sell as part of a rural extension plan. Prospective customers were to be required to purchase a certain amount of this stock before the company would give them service. Because this rural extension plan was not in harmony with a state-wide plan which was then being developed by the Commission and because it felt that the rates which were to be charged the

⁵⁵ See Mosher, *op. cit.*, p. 120.

⁵⁶ G. C. 614-53, 614-60.

users were too high, the security application was denied by the Commission.⁵⁷

In 1922 a local corporation was organized to develop a small hydro-electric project. An investigation by the Commission's engineers showed it to be doomed to almost certain failure and demonstrated the ignorance of the local promoters concerning the technical difficulties of such developments. The application for an approval of a security issue was therefore denied.⁵⁸

In 1928 a motor bus company attempted to force the Commission to consider its application for permission to issue securities, the proceeds from the sale of which were to be used for the acquisition of property to be employed in service outside the State. The statute exempts all such issues from the requirement of obtaining the Commission's approval, and therefore the Commission refused to consider the application. The company carried the case to the State Supreme Court but to no avail. The Court said that, since the Commission could not require the company to obtain the Commission's approval before issuing these securities, it could not be required to consider the application.⁵⁹

Probably the Commission has made a wider use of its powers over securities than such cases as those cited above would seem to indicate, but it is impossible to discover how and to what extent from its printed reports. The engineers of the Commission do check on additions and betterments against which securities are issued. Since these are checked against unit costs of the State, in so far as these can be accurate under the organizational set-up of the Commission,

it really means in the end that security issues approximate investment in property. The sheer number of cases involving securities which the Commission must handle each year, however, is sufficient to force a more or less routine disposition of them.

Control of Service

The Commission's control over the service rendered by local utilities under its jurisdiction is identical with that it has over their rates—namely, appellate. The sections of the statute giving to the Commission its power over utility rates also include their service.⁶⁰ As in the case of utility rates and because of the home rule amendment to the State Constitution, the municipalities have the power to regulate the service being rendered by the utility by ordinance, which, when accepted by the utility, becomes a contract. Only when a municipality neglects to exercise its powers, or, when the utility or the electors of the community appeal to the Commission, does it have any authority in the matter.

Once its authority is invoked and until such time as a contract agreement is entered into between the utility and the municipality, the Commission has a control over the service of the utility involved as extensive as that over its rates. Although this is the law, the writer has been unable thus far to find any case in which the Commission's authority over service has in fact been invoked.

Control of Accounting

It has become increasingly evident as this appraisal of the effectiveness of the Ohio Commission has progressed

⁵⁷ *American Power Co., Ohio P. U. Com. Report*, Vol. 16, p. 220 (1928).

⁵⁸ *Hocking Falls Hydro-Electric Co., Ohio P. U. Com. Report*, Vol. 5, p. 56 (1917).

⁵⁹ *Great Lakes Stages v. Public Utilities Commission*, 166 N. E. 404 (1929).

⁶⁰ G. C. 614-21, 614-22, 614-44, 614-45, 614-46.

that control over accounts and accounting methods is the key to much of the weakness which appears to be present. Without facts with which to work it is impossible to proceed far toward the solution of many of the complex problems which are constantly being presented to the commissions for consideration. These facts are primarily financial in character and should be easily available from the reports filed by the companies. These reports are compiled from the accounts of the utilities and therefore cannot be any more accurate than these accounts themselves. Accurate and systematic accounting is thus essential. After the reports are filed they should be audited as a check upon their accuracy. Only then can they be safely analyzed to supply the information needed to guide the commission in its deliberations.

This requires an extensive and experienced staff. New York, Massachusetts, and Wisconsin have been especially active in this respect but even these states have far from exhausted the possibilities. A most important development which should be encouraged is cost accounting. The deeper one gets into the study of the problems of regulation the more essential do cost studies appear.

The Ohio statute gives broad powers to the Commission over the accounts and accounting practices of the utilities.⁶¹ It includes in general language authority to prescribe the system of accounts to be used by each type of utility, to determine the account to which any particular item must be charged, and to require the utilities to make any reports concerning their accounts which the Commission may require. The Commission has prescribed the accounting system to be followed by the different types of utilities but has done little

else. It maintains no accounting department which could audit and analyze reports as they are received from the companies. The auditor, who is charged with several other duties and has very little assistance, performs this function so far as it is performed at all.

A good accounting department would undoubtedly do more to increase the effectiveness of the Ohio Public Utilities Commission than any other single thing. It could be used to supply the Commission with information essential for effective regulation which is at present either totally lacking or difficult and costly to obtain. This is particularly true with relation to the holding companies and their subsidiaries. Such a department could be used also to make cost studies which would be valuable in gauging the fairness of many rates, contracts, and expenditures.

Control of Holding Companies

At the present time the problem of controlling public utility holding companies occupies an even more prominent position since the recent collapse of some of the larger holding corporations. Investigations similar to the one now being carried on by the Federal Trade Commission provide abundant evidence of the need for a more adequate control. Because these companies are not usually operating utilities and only rarely are incorporated in the state in which they are active, the problem of effectively reaching them is a difficult one. Legally they are generally beyond any direct control of the various state commissions. In the eyes of the law they are not public utilities. Yet they can and do seriously affect and in some cases practically nullify the action of the commissions with respect to their operating subsidiaries.

⁶¹ G. C. 614-10, 614-33, 614-49.

The principal examples of this situation which have arisen in Ohio have concerned the contractual relationships of operating subsidiaries of the same holding company. The best illustration of this problem and of the manner in which it has been handled by the Commission is found in the Columbus Gas and Fuel Company case cited above.⁶² The contract gate rate was being presented by the distributing company in a rate case as an operating expense. The Commission felt that it could not ignore the intercorporate relationships which existed and ordered the applicant company to prove the reasonableness of this contract gate rate. This was accomplished finally by making a valuation of the two wholesaling companies involved and then allocating this valuation among the different distributing companies which they were serving. Thus the Commission was able to check what proved to be an excessive contract rate. This procedure was upheld, on appeal, by the Ohio Supreme Court.⁶³

A more effective regulation of these holding companies in their relations with their subsidiaries will probably have to wait upon additional state and federal legislation. Such laws should, at the minimum, give authority to require that the identity and relationship of every person and corporation holding stock in, or having transactions with, the operating utilities, be disclosed, so that transactions with affiliated interests may be recognized. Access must then be provided to all necessary records of these affiliated interests in order that the cost, and therefore the profits, of all services being rendered to the operating utility may be determined.

⁶² P. U. R. 1933 A 341.

⁶³ *Columbus Gas & Fuel Co. v. Public Utilities Commission*, P. U. R. 1933 D 238.

Conclusion

Administrative commission regulation in the State of Ohio has been in existence for 20 years. During this time the statutory framework has been steadily developing until now an extensive body of law provides the machinery and authority for the regulation of the public utilities. The administrative organization of the Public Utilities Commission of Ohio, as it has developed within this legal framework, is similar in most respects to the form commonly found in other states. It is without very effective control over the markets of the utilities because of the home rule powers of the municipalities. The lack of an adequately staffed accounting department for analyzing the reports and accounting practices of the utilities is probably its major weakness.

In the handling of routine matters the Commission has functioned well. It has rendered its decisions with reasonable promptness and consistency. In matters requiring investigations, and more or less extended hearings, it appears to have functioned best in its control over rates. Final judgment on the effectiveness of its policies must be withheld until an analysis of the financial and operating histories of representative utilities has been made.

The Commission has not wholly failed. Politics, coupled with administrative limitations, a staff too small to meet adequately the problems placed before it, and a general insufficiency of appropriations have combined to hinder the work of the Commission. In face of these drawbacks it has made some outstanding decisions and has, within its powers, on some occasions followed a progressive path.

Summaries of Research

Changes in Farm Land Tenure, 1925-1930

A SURVEY of the changes in land tenure in the United States from 1925 to 1930 showed a marked increase in the proportion of tenants to owners in this half decade, whereas in the first half of the decade (1920-25) the increase was relatively small.¹ In 1920, 38.1% of all farms in the country were operated by tenants while in 1925 the corresponding figure was 38.6%, a change of only $\frac{1}{2}$ of 1%. However, the next five years were to see a greater increase in the percentage of tenancy than had occurred in the first 25 years of this century. Between 1900 and 1925 the percentage of tenancy rose from 35.3% to 38.6% and in 1930 mounted to 42.4%, a rise of 3.8% in the last five census years compared with a 3.3% increase in the first quarter of the century. This marked relative increase of tenancy is accounted for partly by the over-all decline in the number of farms and partly by major shifts of farmers from owner-operation to managers or tenants.

Every state showed an increase in the percentage of tenancy in the last five years except Arizona, Connecticut, Delaware, New York, New Jersey, Pennsylvania, and South Carolina. South Carolina had exactly the same percentage in 1930 as in 1925. The general downward trend which was so pronounced in 1925 in many states east of the Mississippi and in the three Pacific Coast states has been reversed, whereas the upward trend in the South and the

Great Plains has been continued, although the rate of increase was slower than in the 1920-5 period in the Hundredth Meridian states.

Since the percentage of tenancy is a ratio, it may be affected by six or seven different changes in the tenure figures as recorded in the *United States Census*. The *Census* recognizes three main classes of tenure: owners, subdivided into "full owners" and "owners hiring additional land"; tenants; and managers. A change in any one of the three will affect the percentage of tenancy. Between 1920 and 1925 the number of manager-operated farms declined by almost 20,000 which were added to either owner or tenant farms, thus tending to change their relative proportions. On the other hand, since 1925 this classification of managed farms has increased by over 15,000 farms. Aside from a change of this kind the percentage of tenancy can be altered under three different conditions: (1) if the total number of farms remains unaltered, the percentage of tenancy can increase only if the number of owners decreases; (2) if the total number of farms is increasing, the percentage of tenancy will become greater if the increase in tenant farms is greater than in owner farms or if there is a shift from owner to tenant status; (3) if all farms are decreasing and owner farms are decreasing relatively more rapidly or the shift to tenant farms is in process, the percentage of tenants will increase. These conditions permit the grouping of the several states into six classes (with two subdivisions in the

¹See 3 *Journal of Land & Public Utility Economics* 104-107 (February, 1927).

first and last classes) with respect to certain combinations of tenure conditions as follows:

Group	Change in the Number of Farms			Changes in the Percentage of Tenant-Operated Farms
	All Farms	Owner-Operated Farms	Tenant-Operated Farms	
I	Increase	Increase	Increase	Increase or Decrease
II*	Increase	Increase	Decrease	Decrease
III	Increase	Decrease	Decrease	Increase
IV	Decrease	Decrease	Increase	Increase
V*	Decrease	Increase	Decrease	Decrease
VI	Decrease	Decrease	Decrease	Increase or Decrease

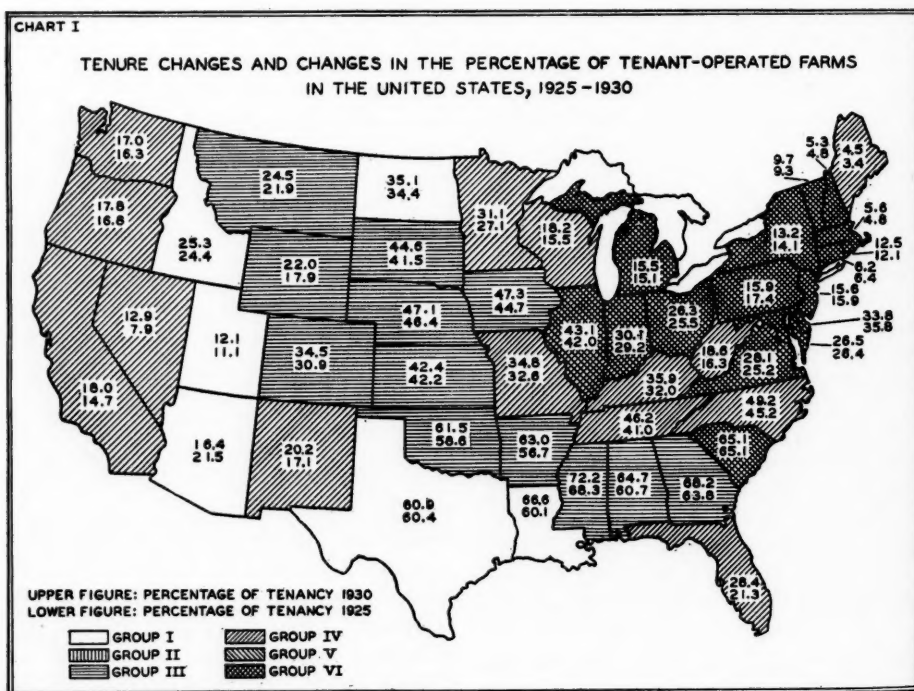
* Represented in 1925 but not in 1930.

In the period 1920 to 1925 all six groups were present but in the 1925 to 1930 period only four can be identified (Chart I).

Group I consists of those states in which the absolute number of all farms, of owners, and of tenants increased. In the first five years of the 1920-30 dec-

ade 26 states showed an increase in the total number of farms, as compared with only 18 in the last five years of the period. In 1925 nine states were in this group and two of them had a greater increase in owners than in tenants resulting in a decreased percentage of tenancy, whereas seven had a higher percentage of tenant-operated farms in 1925 than in 1920. But in 1930 there were only six states in this group, all with a higher proportion of tenant farmers in 1930 than in 1925, Arizona excepted. This State decreased its percentage of tenancy, for while only four tenant farms were added to its total there was an increase of 3,115 owner-operated and 252 manager-operated farms.

In 1925, 11 states had decreased their proportion of tenant-operated farms



since 1920 by decreasing the total number of tenant farms at the same time that all farms as well as the owner-operated farms were increasing (Group II). Most of new England, several of the Middle Atlantic states, Florida, and the Pacific Coast states were in this group, but in 1930 not a single state fitted into this classification.

Group III consisted in 1930 of twelve states, having an increase of all farms but an increase of tenant farms accompanied by a decline in owner farms. In 1925 only six were in this situation. Five states—namely, Oklahoma, Nebraska, Kansas, South Dakota, and Iowa—appeared in this group in both years. In 1930 they were augmented by three states immediately to the northwest and four southern states. In many ways these states represent the most critical tenure situation because there was a complete shift from the owner to the tenant status. For, while all farms were increasing in number, this shift represented an especially large increase in tenant farms, since the owner-operated farms were declining during the period.

The last three groups are characterized by a decreasing number of farms. Group IV includes those states which lost owner farms but actually increased the total number of tenant farms in spite of a general decline in all farms. Naturally, these states show a sharp increase in the percentage of tenancy. In 1930 there were 14 states in this group compared with eight in 1925.

Group V fails to appear in 1930 although there were seven states in it in 1925. This group includes those states where the percentage of tenancy was decreased through an increase of owners accompanied by a decrease of tenants and of all farms. There was not a single state in which owners had increased at

the expense of tenants during the last half of the census decade.

The last group is the opposite of the first in that there is a decrease in all farms, in owners, and in tenants, and the change in the percentage of tenants arises out of a more rapid decrease in tenants as compared to owners or vice-versa. The 1925 *Census* showed seven states in Group VI, four of which reduced their proportion of tenant-operated farms and three increased it. In 1930 there were 15 states in this group; in fact, almost all the states in Group V in 1925 were in Group VI in 1930. All but five states had an increase in the proportion of tenant-operated farms.

The United States as a whole has the characteristics of Group IV. In the period 1920-1925 the various shifts in individual states resulted in a total increase of only 7,724 tenants for the entire nation as compared with 1920. But in the last five years of the decade there was a gain of almost 201,800 tenants accompanied by a decrease of 300,000 owner-operators and a decline of 83,000 farms of all kinds.

Not only has the tenure pattern changed as to the relative position of the three main tenure classes but more land is operated by tenants than ever before, partly because of the increase in the acreage of land rented by owners to add to their own farms. In 1925 almost 550,000 owner farmers rented additional land but five years later 102,000 more were doing so, an increase of 18.5%. The acreage rented by men who owned farms increased from 96 to 125 million acres during these five years. In fact, the land operated as owned land was only five million acres less than the rented land in 1930, a somewhat greater difference than in 1925.

Another striking change was the increase of over 151,000 "croppers" since

1925 in the South. Part of this increase is explained by the general increase in tenants but part of it is the result of shifts from other tenure groups. The *1920 Census* was the first to differentiate between croppers and other forms of tenure. At that time there were over 227,000 white and almost 334,000 colored croppers in the South. Since then this type of renter has become more numerous in both races. This is especially significant for the negroes, because, in spite of the heavy exodus from farms between 1920 and 1925, resulting in a decrease of about 67,000 negro tenants, the number of negro croppers increased by 10,600. Since 1925 the situation has been reversed; there has been an increase of 63,000 negro tenants of which 49,000 were croppers. Equally striking is the increase of almost 105,-

000 white croppers as a part of the total increase of 127,000 white tenants in the period 1925-30 in the South.

Taking the entire decade as a unit, the South has lost almost 146,000 white owners and 36,000 negro owners, of which 91,000 of the former and about 13,000 of the latter disappeared during the last five years. On the other hand, the South gained during the decade over 200,000 white tenants of whom almost 127,000 appeared in the last five years. The exodus of the negro from the South during the post-war period is shown by the loss of 67,207 negro tenants before 1925, but the loss was partly regained by the increase of 62,591 during the next five years, leaving the South with a net loss of 4,716 negro tenants in 1930 as compared with 1920.

GEORGE S. WEHRWEIN.

Comments on Legislation and Court Decisions

Recent Developments in Low-Cost Housing and Slum Clearance Programs

INTEREST in low-cost housing and slum clearance has spread rapidly since the 21st day of July, 1932, when Congress, in authorizing the Reconstruction Finance Corporation to make loans for self-liquidating projects, included a section permitting such loans to be made

"to corporations formed wholly for the purpose of providing housing for families of low income or for reconstruction of slum areas, which are regulated by State or Municipal laws as to rents, charges, capital structure, rate of return, and areas and methods of operation, to aid in financing projects undertaken by such corporations which are self-liquidating in character."¹

At the time of the enactment of this law, the requirement of state or municipal regulation of corporations in order to make them eligible for loans could be met in but one state, New York. In 1926 the then Governor, Alfred E. Smith, had succeeded in getting through the Legislature of that State a measure creating a State Housing Board and authorizing corporations whose dividends were limited by law to a moderate return on the capital invested, and which were subject to regulation by the State Board in regard to the matters enumerated in the federal statute above quoted. In return, such corporations were authorized to exercise the power of eminent domain where necessary in acquiring sites, and were granted exemption from State taxation.

Stimulated by the prospect of ob-

taining federal money and by the urgent need to find employment for their citizens, 11 other states soon passed laws more or less similar to that of New York, setting up state housing boards and providing for limited dividend corporations which would be subject to the required supervision.²

When the Public Works section of the National Industrial Recovery Act was passed in June, 1933,³ housing was again included as a purpose for which loans could be made. The conditions upon which federal aid could be granted were stated in much less specific terms than previously; the Public Works Administrator was simply given a general authority to prepare a comprehensive public works program which should include, among other things, "construction, reconstruction, alteration, or repair, under public regulation or control, of low cost housing and slum clearance projects."

Under this new law loans could still be made for publicly regulated private undertakings as before, but the Administrator was not limited to that one form of assistance. He was given the further authority to grant outright to municipal or other public authorities undertaking projects which came within the terms of the act, a sum equal to 30% of the cost of labor and materials for the proposed development. A third alternative is for the Federal Govern-

Jersey, North Carolina, Ohio, South Carolina, Texas, Florida, and Illinois.

¹ Session Laws, Chapter 520, §201(a), July 21, 1932.

² Arkansas, California, Delaware, Kansas, New

³ Session Laws, Chapter 90, §202, June 16, 1933.

ment to create its own agencies to carry out any desired program of this sort.

The scheme of government loans to private limited dividend corporations for large-scale housing developments has not met the expectations of its sponsors.⁴ Although over 200 applications for loans have been made,⁵ only a small fraction of these have received approval.⁶ Several factors have contributed to this result. In the first place, the problem of equity financing has been a serious obstacle. For obvious reasons, actual cash has been difficult to obtain. While the Government has signified its willingness to accept land and services as contributions of equity value, it has insisted that such items have, in fact, a substantial worth in order to qualify for loans.⁷ A second major reason for rejecting applications has been the nature of the property upon which it is proposed to build. The task of assembling a large block of property by the purchase of many lots from small holders is always difficult, even with the benefit of the power of eminent domain. There is now a large amount of industrial property which can be obtained easily and cheaply. Many promoters have therefore sought loans for the development of such sites. For obvious reasons of social policy, these applications have been denied.

On the other hand, the site offered

may be too expensive to permit the construction of genuinely low-cost housing. The Government's expressed policy is to reject applications where it appears that the cost will be so great that the new construction will compete with an existing grade of housing in which there are now a large number of vacancies.⁸

The possibility of financing housing projects by loans to municipalities or other public agencies, coupled with an outright grant of 30% of the cost of labor and materials, is of limited importance so far as the immediate present is concerned. Limited dividend corporations are not such public agencies as to be eligible, and few municipalities have the necessary authority to take advantage of this aid. Ohio has recently passed a law providing for the establishment of municipal housing authorities to inaugurate and carry out housing developments. Cleveland, Cincinnati, and Toledo have already created such authorities. Three cities in other states, Milwaukee, Los Angeles, and Detroit, are believed to have sufficient power without additional legislation.⁹ In Milwaukee a municipal housing commission appointed by Mayor Hoan has reported in favor of municipal housing and efforts are being made to secure federal funds for two projects in that City. In New York, Governor Lehman recommended legislation to this end, but the Legislature failed to pass it.¹⁰

⁴ When the incorporation of the Federal Emergency Housing Corporation was announced, Secretary Ickes prefaced his announcement with the statement that "Our experience of the last three months indicates clearly that we may not depend upon private enterprise or limited dividend corporations to initiate comprehensive low-cost housing and slum clearance projects." (*New York Times*, October 29, 1933).

⁵ Horace W. Peaslee, Assistant to Director of Housing, Federal Emergency Public Works Administration, in the *United States News*, November 13, 1933.

⁶ In the *New York Times* of October 11, 1933 it was stated that 14 loans involving a total expenditure of \$40,427,458 had been made for housing projects up to that time.

⁷ "Since the Federal Government is primarily concerned with the continuing interest and responsibility of the sponsors of the project and of the holders of the equity during the life of the loan, it follows that the equity must be established by the investment of something other than the profits derived from the operation." (Robert D. Kohn, *United States News*, December 4, 1933.)

⁸ Horace W. Peaslee, *op. cit.*

⁹ Robert D. Kohn, Director of Housing, Federal Emergency Public Works Administration, in *New York Times*, October 11, 1933.

¹⁰ *New York Times*, August 4, 1933, and October 19, 1933.

Efforts are being made in behalf of such legislation in several other states.

There remains the third possibility, that of direct federal action through agencies of its own creation, and it is in this field that prospects for extensive slum clearance programs are most encouraging. On October 29, 1933 Secretary Ickes announced that papers had been filed for the incorporation in Delaware of a Public Works Emergency Housing Corporation.¹¹ This Corporation will have the power to go into any city, acquire sites by exercise of the power of eminent domain, erect apartments or dwellings, and operate them as landlord. It has already assumed responsibility for a \$14,000,000 development in Cleveland. Sometime ago the Cleveland City Council and civic organizations of that City announced an ambitious \$250,000,000 program for the complete rebuilding of its slum areas.¹² It sought to be a national laboratory for slum clearance experiments. Definite plans had been made for an initial undertaking to be carried out by local limited dividend corporations. The Public Works Administration had agreed to lend \$12,000,000 if \$2,000,000 could be raised locally. When it was found that this equity could not be raised, the Federal Emergency Housing Corporation took over the project. Surveys are being made in several other cities looking toward the rebuilding of large slum areas, but no further definite plans have been announced.

A kindred development is that of "subsistence homesteads." The Public Works Administration has \$25,000,000 for this purpose. Homes are to be built on small tracts of land where families

can grow their own food stuffs. Some \$8,000,000 are to be used in building 23 villages of about 200 families each in mining areas in Pennsylvania, West Virginia, and western Kentucky. The first of these villages will be located near Morgantown, West Virginia. Each family will have from two to four acres of ground and a small house costing about \$2,000; these homesteads are to be purchased by the occupants under a 20-year payment plan. Allied educational and industrial development is planned in order to make these families economically independent.¹³

The Tennessee Valley Authority is sponsoring a similar enterprise near Norris Dam on the Clinch River near Knoxville, Tennessee. A village which will bear the name of Norris is to be built to house the workers on the dam construction. Plans are being made for a permanent community of 500 families. Construction of 250 houses is under way. These houses have from two to seven rooms and are built on lots averaging 75 by 200 feet. Subsistence farm plots of about four acres each will be located within easy access from the town for those who want to raise gardens or carry on small-scale farming. Necessarily, boarding houses for unmarried workers will also be constructed.¹⁴

With the financial resources, the authority, and the organization now available to the Federal Government, there is reason to anticipate definite progress in providing more adequate and more wholesome housing for a large fraction of the population now living in slums.

MARY LOUISE RAMSEY.

Place of Subsistence Homesteads", 10 *Journal of Land & Public Utility Economics* 1-12 (February, 1934).

¹⁴ Earle S. Draper, Director of Land Planning and Housing, Tennessee Valley Authority, in the *United States News*, November 27, 1933.

¹¹ *New York Times*, October 29, 1933.

¹² *New York Times*, May 14, 1933.

¹³ *New York Times*, October 16, 1933; see especially M. L. Wilson, "A New Land-Use Program: And the

Locomotive Maintenance in Prosperity and Depression

IN the November, 1933, issue of this *Journal*, Professor R. W. Harbeson suggests that there be added to the present published railway operating statistics an index to show the extent to which "classified" locomotive repairs are keeping pace with locomotive use. The index is based on a comparison of the computed miles of potential service restored by such repairs to locomotives passing through the shops with the miles run by the locomotives in use, the figures to be shown separately each month for freight, passenger, and switching locomotives.

A report of the quantity of locomotive repair work turned out of shops each month is important from the standpoint of the operating official. Such information was given semi-monthly from January, 1924, to August, 1930 in the published reports of the Car Service Division of the American Railway Association for each large railway in the form of the number of locomotives turned out of shop for each of the five classes of repairs. It served to throw light on the question whether the railways were keeping their power in condition to render adequate service. This feature of the reports was discontinued after consultation with the representatives of the Bureau of Service of the Interstate Commerce Commission, as not being necessary in view of other available sources of information.

If an index of shop activity in the form suggested should be added to the existing published statistics, it would have to be properly safeguarded to insure that the estimated number of miles reported as restored is based on the actual facts of past performance for each locomotive after shoppings for the same class of repairs. General

averages for freight, passenger, and switch services adopted according to the judgment of the management would not give results which would be generally accepted as reliable. One railway in recent years has increased the averages which it uses as expected mileage restored by repairs of classes I, II, or III from 120,000 to 145,000 for passenger locomotives, from 80,000 to 95,000 for freight locomotives, and from 50,000 to 75,000 for switch locomotives, and at the same time class IV and class V repairs were excluded from the monthly computations. These changes, doubtless justified, illustrate some of the uncertainties involved in this type of statistics.

The index in question has the appearance of being at once a convenient and exact method of measuring the adequacy of locomotive maintenance, but it is in fact subject to qualifications, as Professor Harbeson indicates. He brushes them aside, but they are of considerable importance. For the operating official who can make the necessary allowances according to conditions on his line, it is unquestionably a useful tool for controlling the rate of repair work, but for the purposes suggested by Professor Harbeson, such as considering the return on investment, it would be of less value, and in some years would be positively misleading. In discussing railway finances, one has frequent occasion to answer the question whether the net operating income of a particular year or period is over- or understated because of deficient or excessive maintenance charges, and an index which could give a precisely quantitative answer to that question would be of great value. But it is exactly in this respect that the suggested index fails

to be reliable. This is because the significance of the dividing line between classified and running repairs may vary in different years and on various railways. In a year of low revenues when classified repairs are postponed, considerable work may be done piecemeal on a locomotive kept in service that in other years would be done as one classified job. Consequently, in judging the adequacy of maintenance expenditure it is well to deal with total repairs instead of with classified repairs only.

But even if the index were reliable in a particular year, it would be untrustworthy for the purpose for which it is recommended over a period of years. A 10% excess in maintenance in one year of a decade cannot be balanced against a 10% deficiency in another year because of the changes which may have occurred in the size and age composition of the locomotives. The importance of this point is illustrated by figures for the period covered by Professor Harbeson. These are given for all large steam railways in total and also for the railway used by Professor Harbeson for illustration. He does not name it, but it is easily identified from the rates of return given, and will here be referred to as the XYZ railway.

TABLE I. COMPARATIVE LOCOMOTIVE EQUIPMENT, 1925 AND 1932

Item	Large Steam Railways	XYZ Railway
Number of locomotives owned or leased at close of year		
1932	53,316	773
1925	63,974	1,048
Average tractive power per steam locomotive (pounds)		
1932	46,299	34,188
1925	40,666	29,394
Locomotive ton-miles per locomotive-mile in road freight service		
1932	234	213
1925	201	155

The increase in average tractive power was nearly 14% for the large railways and over 16% for the XYZ railway. For the latter, each mile actually run in road freight service in 1932 meant moving over $\frac{1}{8}$ more locomotive weight than in 1925, with, of course, greater capacity for service. It had 54 locomotives equipped with boosters in 1932 and none in 1925, and it had 525 equipped with superheaters in 1932 compared with 472 in 1925. The drastic reduction in the number of locomotives on this railway means that a large part of the locomotive-miles "run out" in this period will never have to be restored by repairs, for usually a locomotive would not be given heavy repairs just before being scrapped. It also means that some mileage not run out was lost when the unit was retired, but probably much more of the former than of the latter.

The index, of course, throws no light on the efficiency with which the repairs are made, as is also true of other available measures of maintenance. If a railroad each year restored 100% of the miles run, it might be wasting money on repairs if its power is antiquated or if its shops are inefficiently equipped and operated. Furthermore, if the regularity of employment is to be studied, resort would be had, not to the suggested index, but to the monthly employment statistics.

It is not the purpose of the present writer to contend that the index is without value if properly used and interpreted, but it seems not to be well adapted for the particular purpose for which it is recommended by Professor Harbeson.

Existing statistics give some indication of whether locomotive maintenance is adequate or not. The following table is compiled from the annual

reports of the XYZ railway to the Interstate Commerce Commission. The simultaneous increase in the percentage of unserviceable locomotives and a reduction in the percentage stored in 1931 and 1932, compared with 1929 and 1930, indicate that much maintenance was deferred in 1931 and 1932 (Table II).

A separate showing as to classified repairs is available in the published monthly reports of the Car Service Division of the American Railway Association. Table III is compiled from those reports for the month of December. It shows a stable condition until 1930 with a marked postponement of such repairs in 1931 and 1932, and apparently to a greater extent for the XYZ railway than for all railways (Table III).

The Interstate Commerce Commission also has current information regarding the condition of the locomotives actually in use as a result of reports made by the agents of its bureau of locomotive inspection. These indicate that in the period under consideration there has been a progressive improvement in the condition from the standpoint of safety in operations. This is true for both the XYZ railway and the other Class I railways, as shown by the

TABLE II. AVERAGE NUMBER OF FREIGHT LOCOMOTIVES OF THE XYZ RAILWAY (ANNUAL AVERAGE OF MONTHLY CONDITION)

Year	Active Serviceable	Stored Serviceable	Total Serviceable	Unserviceable*	Total
1925	300.1	43.6	343.7	103.1	446.8
1926	275.8	40.9	316.7	86.8	403.5
1927	251.2	25.8	277.0	70.5	347.5
1928	229.9	40.7	270.6	50.7	321.3
1929	209.8	50.2	260.0	41.6	301.6
1930	184.4	65.3	249.7	49.9	299.6
1931	163.1	41.3	204.4	91.1	295.5
1932	114.5	29.9	144.4	145.1	289.5

PERCENTAGE

1925	67.2%	9.7%	76.9%	23.1%	100%
1926	68.4	10.1	78.5	21.5	100
1927	72.3	7.4	79.7	20.3	100
1928	71.6	12.6	84.2	15.8	100
1929	69.6	16.6	86.2	13.8	100
1930	61.5	21.8	83.3	16.7	100
1931	55.2	14.0	69.2	30.8	100
1932	39.6	10.3	49.9	50.1	100

* "Unserviceable" in this table includes locomotives awaiting or undergoing repairs if held out of service more than 24 hours on that account.

figures in Table IV taken from the published annual reports of the bureau of locomotive inspection.

The explanation of the striking improvement shown in the face of the increased percentage unserviceable given above is that the better locomotives in good repair have been used to handle the subnormal traffic and, also, possibly the existing conditions of employment have conduced to more effective repair work. In 1932 only 8% of the locomotives inspected were found defective,

TABLE III. PERCENTAGE OF LOCOMOTIVES IN OR AWAITING SHOP FOR CLASSIFIED REPAIRS

Month of December in Year Stated	Percentage of Locomotives in or Awaiting Shop for Classified Repairs*							
	Passenger		Freight		Switching		Total	
	Large Railways	XYZ Railway	Large Railways	XYZ Railway	Large Railways	XYZ Railway	Large Railways	XYZ Railway
1925	9.4%	3.3%	8.9%	4.0%	6.7%	4.7%	8.5%	3.9%
1926	8.8	6.0	7.9	5.6	6.1	2.3	7.6	5.0
1927	8.9	7.0	8.1	6.6	6.0	6.2	7.8	6.6
1928	8.4	5.1	8.0	6.5	5.9	3.8	7.5	5.4
1929	8.2	6.8	7.9	10.6	5.5	7.3	7.3	8.5
1930	10.1	11.4	9.9	10.6	7.2	3.4	9.2	9.2
1931	13.8	14.1	13.5	18.7	10.2	7.0	12.7	14.2
1932	17.4	24.2	19.5	45.3	15.5	25.6	18.0	32.6

* Condition on December 1 from A. R. A. Car Service Division reports. Similar information is available for each of the five classes separately.

compared with 46% in 1925. In this connection it is of interest to compare the amount of machinists' and boiler-makers' time per locomotive-mile. These

TABLE IV. CONDITION OF LOCOMOTIVES IN USE, 1925-1932.

Year Ended June 30	Percentage Inspected Found Defective		Number Ordered Out of Service	
	All Railways	XYZ Railway	All Railways	XYZ Railway
1925	46	36	3,637	23
1926	40	27	3,281	14
1927	31	23	2,539	13
1928	24	20	1,725	2
1929	21	16	1,490	3
1930	16	16	1,200	4
1931	10	13	688	6
1932	8	10	527	5

figures indicate that in 1931 and 1932, when classified repairs were deferred to a large extent, the locomotives in use were well maintained. The large decline in the averages from 1925 to 1929 probably reflects the effect of eliminating obsolete power (Table V).

Current government statistics should be sufficient to show general trends, but should not be made unduly intricate and burdensome. They cannot obviate the necessity for special studies from time to time. It may be noted that at present

TABLE V. MAN-HOURS OF MACHINISTS AND BOILER-MAKERS PER 1,000 LOCOMOTIVE MILES

Year	Total for Large Steam Railways	XYZ Railway
1925	116	155
1926	113	141
1927	111	120
1928	107	97
1929	104	92
1930	100	87
1931	95	82
1932	90	86

a comprehensive review of the condition of railway locomotive power is being conducted by the office of the Federal Coordinator of Transportation. There are many additions to the present published railway statistics which would be interesting and helpful, not only in the field of operating statistics but also in connection with commodity statistics and expense analysis. An extensive revision of the accounts and statistics has been under consideration in a proceeding before the Interstate Commerce Commission known as *Ex Parte 91*, but final action has been necessarily postponed on account of the need for drastic economy, both in government and railway finances.

M. O. LORENZ

Locomotive Maintenance in Prosperity and Depression: A Reply

I WELCOME this opportunity to write a few words of explanation in reply to Dr. M. O. Lorenz's criticism of my article on "A Method of Measuring Locomotive Maintenance and its Use in Regulation". Coming from one of Dr. Lorenz's authority, the criticism merits the most careful attention.

So far as I am able to judge, Dr. Lorenz has been misled by my failure to make it sufficiently clear that I was *not*

proposing that the maintenance ratio in question be used in its *crude* form, as in the illustrative data given in the article. I intended to convey the idea that, if the data in question were collected and used in developing a maintenance ratio, they should incorporate so far as possible all the corrections suggested by the qualifications given on pages 353-54 of my article.

It is my impression that the criticism consists almost entirely of an elabora-

tion and emphasis of the corrections referred to, and is not directed at the validity of the principle upon which the ratio is constructed. For example, in my article I stated that "an important correction relates to the effect of the changing age distribution of the locomotives in service. A complement of new and improved locomotives would require less frequent shopping than a complement of old ones."¹ (In the criticism the factor of a changing number of locomotives is added.) Nevertheless, Dr. Lorenz says:

"But even if the index were reliable in a particular year, it would be untrustworthy for the purpose for which it is recommended over a period of years. A 10% excess in maintenance in one year of a decade cannot be balanced against a 10% deficiency in another year because of the change which may have occurred in the size and age composition of the locomotives."

Again, I refer to the need for making a correction to account for varying amounts of roundhouse attention for running repairs, though possibly I should have given it more weight. On this point Dr. Lorenz, after remarking that a precise method of measuring an excess or deficiency of maintenance would be of great value, says:

"But it is precisely in this respect that the suggested index fails to be reliable. This is because the significance of the dividing line between classified and running repairs may vary in different years and on various railways. In a year of low revenues when classified repairs are postponed, considerable work may be done piecemeal on a locomotive kept in service that in other years would be done as one classified job. Consequently, in judging the adequacy of maintenance expenditure it is well to deal with total repairs instead of with classified repairs only."

This suggests a refinement of the maintenance ratio based on classified

repairs, either by applying a correction to allow for increased running repairs, as I suggest, if practicable, or by supplementing this ratio with data reflecting changes in running repairs. In any case, the decline of classified repairs would itself be significant, especially since increased patching up at roundhouses cannot fully substitute for thorough overhauling.

Dr. Lorenz also says:

"If an index of shop activity in the form suggested should be added to the existing published statistics, it would have to be properly safeguarded to insure that the estimated number of miles reported as restored is based on the actual facts of past performance for each locomotive after shoppings for the same class of repairs. General averages for freight, passenger, and switch services *adopted according to the judgment of the management* would not give results that would be generally accepted as reliable." (Italics mine.)

With this statement I fully agree. I wish to note, however, that I said nothing in the article suggesting that the figures used for potential miles restored should be left to the judgment of management.

Finally, it is stated that "if the regularity of employment is to be studied resort would be had not to the suggested index but to the monthly employment statistics." I did not suggest that these data be used as a mere source of information as to changes in the volume of employment of the shop forces, but indicated that irregular employment was incidental to present maintenance policies and suggested a plan for regularizing such employment.

It is also very properly suggested that the maintenance ratio in question throws no light on the *efficiency* with which repairs are made, whether shops are inefficiently equipped and operated and whether money is being wasted on re-

¹ 9 *Journal of Land & Public Utility Economics* 353-4 (November, 1933).

pairing antiquated power, but it is recognized that this is beyond the scope of a measure of the *adequacy* of maintenance.

Dr. Lorenz has done a service in emphasizing the importance of these corrections and limitations, but he quite misunderstands me in saying that I "brush them aside." I attach as much importance to them as does he. He admits that "for the operating official who can make the necessary allowances according to conditions on his line it [the maintenance ratio] is unquestionably a useful tool for controlling the rate of repairs", and that an index which could give "a precisely quantitative answer" to the question whether the net operating income of a particular period is being overstated or understated because of deficient or excessive maintenance charges would be of great value.

I cannot feel that Dr. Lorenz has demonstrated that the maintenance ratio in question would be unsuited to this purpose, when corrected as suggested by both of us, inasmuch as he devoted his attention almost entirely to amplifying and emphasizing these corrections. The important question seems to me to be whether and to what extent it is feasible to incorporate these corrections into the maintenance ratio, and Dr. Lorenz seems to have nothing specific to say on this point. Speaking in general, however, he says that government statistics should not be made unduly intricate or burdensome. But while data now available, taken collectively, do throw light on the condition of locomotives, as he points out, it

seems to me that in view of the large and growing importance of the item of locomotive maintenance such data might well be supplemented by a direct measure of the sort suggested.

My article was intended to be suggestive and not exhaustive. I have not examined whether, to what extent, or how the corrections in question could be incorporated into the maintenance ratio. In part, the task is doubtless beyond my competence. I hope that Dr. Lorenz and his organization, with their vast amount of excellent and constructive work as a background, will see fit to undertake this task. A point is always reached, as Dr. Lorenz intimates, beyond which it is administratively impracticable to go in refining statistical measures for general and continuous collection and use. The maintenance ratio is subject to this limitation in common with other statistical measures. But if computed even without *all* the refinements it would seem still to be useful, and many of the currently published statistical measures are similarly limited because of considerations of administrative economy. In any event, as much of the necessary basic data as possible should be regularly collected even if the maintenance ratio in refined form be not continuously computed, so that the latter could be computed at intervals as occasion arose. The data now being collected by the Federal Coordinator of Transportation are of this sort. Permanent provision for the collection of similar data would seem to be in reasonable harmony with canons of economy in government and railway finance.

R. W. HARBESON

Book Reviews

MILLER, SIDNEY L. *INLAND TRANSPORTATION*. New York: McGraw-Hill Book Co., Inc., 1933. pp. xviii, 822. \$4.

This new volume, dealing with all forms of inland transportation in the United States, is a revision and extension of the author's earlier textbook entitled *Railway Transportation*. The revised work is divided into five parts. The first defines the nature and significance of transportation and traces the historical development. The second is devoted entirely to a century's history of railways, including the development and present status of governmental regulation. The third describes the organization and services of railways, and the fourth deals with the economics of transport, including discussions of consolidation, capitalization, and theory and practice of rate-making. In Part V, entitled "Modern Transport," are included transportation by highway, inland waterway, pipe line, and air, with an analysis of the several problems in the present situation. The concluding chapter contains the author's conception of the desirable national transportation policy.

Professor Miller has provided an excellent textbook for undergraduate courses in the economics of transportation. A nice balance is maintained between the factual and descriptive and the critical discussion of principle. The style is lucid and the technical aspects are set forth in language easily understood. In controversial fields the author is fair and objective. In arrangement and logical sequence that part which is a revision of the earlier volume excels the second half of the present book, written probably under pressure, as it includes discussion of legislation and events of a period little more than a month prior to the publication of the volume. The additions to bring the discussion up to date are not as logically arranged as the earlier chapters

and in some cases there are inconsistencies attributable to failure to amend the text to bring it in accord with changes made by the Emergency Transportation Act of 1933, included as an appendix and discussed briefly in the concluding chapters. A case in point is that of the recapture of excess earnings, discussed at page 225 and elsewhere. The reader is not there informed, as he may discover if he reads the appendix, that the recapture clause was retroactively repealed in June, 1933.

The list of references at the end of the chapters is of value to the student. As a rule, such references have been chosen with sound discrimination but in a few instances there are notable omissions. As one example, the comprehensive and authoritative work of Walker D. Hines, *The War History of American Railroads*, is not included among others which deal with the period of federal operation of railways 1918-1920. The list following the chapter on accounting and statistics might well have included the contributions of Woodlock, Eaton, and White.

The new volume is comprehensive in scope. It deals with each form of inland transportation from its beginnings to the present time. It critically considers the factors which have influenced the existing crisis in rail transportation and points the way to effective coordination of the several agencies. And, finally, it outlines the elements in a constructive national transportation policy. Covering so much ground in a single volume, even though it embraces 800 pages of nearly 500 words each, it was inevitable that here and there certain items of interest would be omitted or inadequately treated, but on the whole Professor Miller has succeeded, by skillful condensation and sound discrimination between the important and unimportant, in producing a well-balanced treatise.

WILLIAM J. CUNNINGHAM.